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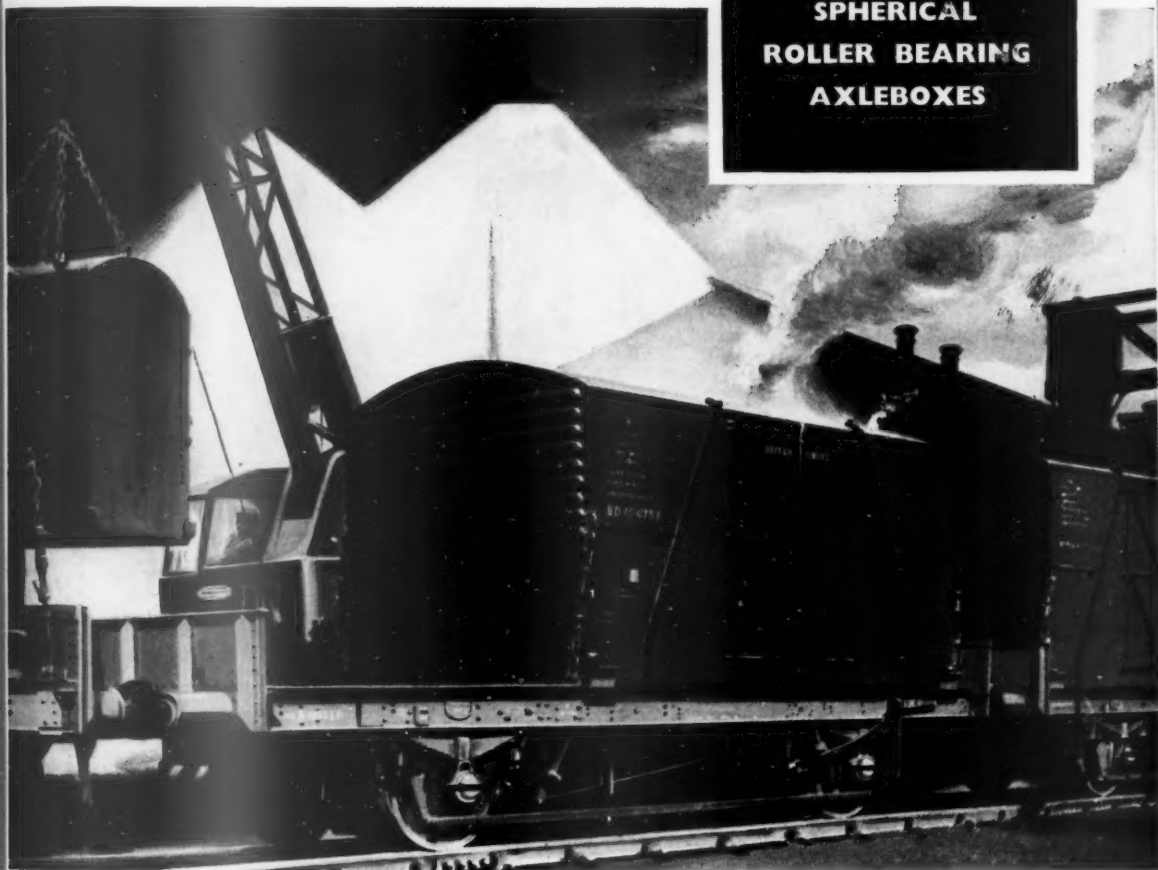
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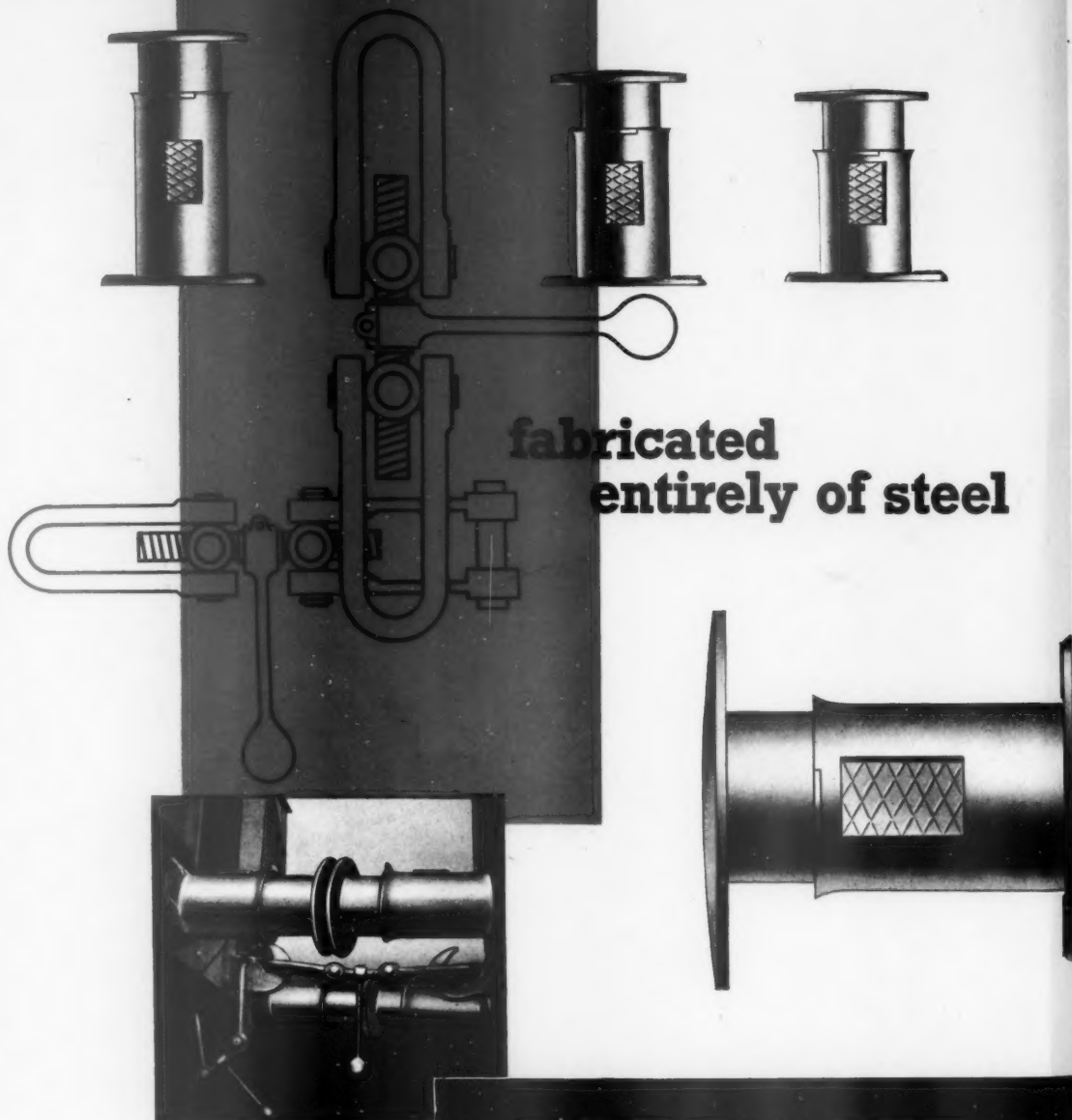
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## Surprise Pay Demand

THE decision last Thursday of the National Union of Railwaymen to demand a substantial wage increase for its members on British Railways, London Transport, and other sections of the British Transport Commission not only is a surprise, but a most inopportune move. A wage claim made before publication of a report by the committee now inquiring into the relativity of railway pay undoubtedly could prejudice the work being done by the review. The outcome of the claim could well create a fresh set of circumstances for the inquiry to examine. It is understood that many rank-and-file railwaymen are resentful of what they consider to be the slow progress by the inquiry. As we have stated in previous editorials, there is nothing to be gained by either side in this matter from a show of speed for its own sake. An immense amount of ground must be covered by the inquiry, which must be thorough or it will accomplish nothing. The salient object of the review is to effect the most compre-

hensive job-analysis ever carried out on British Railways. This obviously must take time. It cannot too clearly be stressed that the findings of this review will stand as a basis for job-assessment for many years to come. If investigations are hurried and therefore possibly skimped, these findings may well be inaccurate and the cause of endless bitterness in the future. In the light of opinion consistently expressed by Mr. Sidney Greene, General Secretary of the N.U.R., it is obvious that the decision has been forced on the union executive by the branches, which often fail to take an overall view of the general situation. In common with other unions, the N.U.R. suffers from incomplete attendance at its branch meetings and it is accordingly fairly simple for hotheaded, partly-informed, and vociferous members to become dominant and thus appear to represent sectional opinion. That the Executive of the union is alive to this danger is shown by a column-long feature in last week's issue of the *Railway Review*, which urges N.U.R. members to put union business before pleasure on the evening of the branch meeting.

## Loan for Pakistan Railways

THE greater part of the new loan of up to \$9,100,000 from U.S.A. to equip the Pakistan railways is being spent on diesel development on, it is understood, the North Western Railway. Purchase of 20 broad-gauge diesel-electric locomotives and spare parts absorbs some \$5,000,000, and that of 172 heavy-duty flat wagons \$3,200,000. On the N.W.R. \$900,000 has been allocated to acquisition of equipment for a diesel-electric locomotive maintenance depot at Lahore and a diesel-electric repair shop at Rawalpindi. Action to implement these plans already has been taken, and delivery of locomotives and rolling stock and equipment of depots is expected to be completed by the end of next year. The depots at Lahore and Rawalpindi are necessary for extension of diesel-electric traction on the Karachi-Lahore-Rawalpindi-Peshawar main line. Thereafter diesel motive power will probably be much increased on the metre gauge lines of the Eastern Bengal Railway.

## Heavy Deficit in Malaya

A DEFICIT of \$6,500,000 for 1958 is expected on the working of the Malayan Railway, which makes last year one of the worst in the railway's history since the depression in the early 1930s. The deficit is large in relation to estimated railway receipts of \$58,000,000. The railway has paid its way over the last few years, largely through efficiency in working. During the fourth quarter of last year, receipts, goods, tonnage, and passenger journeys carried continued lower than in 1957, mainly because of the economic recession, but in December, 1958, there seemed to be signs of a small revival in traffic. Tonnages carried were depressed during November and December by the cessation of iron ore forwardings from a major concern on the East Coast Line. Reductions were made in goods train services during the last quarter of 1958. The decline in train mileage resulted in considerable economies in operation, which were enhanced by increasing the trailing loads of the diesel-worked night goods trains south of Kuala Lumpur to 800 tons. An improvement in the general economic situation is now expected, which should result eventually in increased traffics.

## Victoria Development Mission to Britain

THE Victoria Development Mission, headed by Mr. Henry E. Bolte, the Premier of Victoria, will arrive in London on June 1, and will be in the United Kingdom for about three weeks. Other members of the mission will be Councillor M. A. Nathan, Chairman of the Victoria Promotion Committee, and Sir John Jungwirth, Secretary of the Premier's Department. The mission will also visit Edinburgh, Birmingham, Glasgow, Manchester, and Coventry. It will lend direct Government weight to the campaign to achieve a still higher level of British industrial investment in Victoria. Half the annual United Kingdom investment in Australia goes to that State and the purpose of the visit

is to step up this investment. There are at present over 200 British-owned or associated factories in Victoria. The visit follows a campaign initiated three years ago when the Victoria Promotion Committee was formed, under the chairmanship of Councillor Nathan, to intensify efforts to attract industry and business to the State from overseas. The mission does not intend to tour British industrial concerns, but will put the case for investment in Victoria through press conferences and meetings with Chambers of Commerce.

### British Officers from Overseas Railways

THE relinquishment of their appointments before their normal retiring age by senior British officers of railways in India and other countries at the time of, or soon after, achievement of political independence by those States, in most cases had been foreseen for some time. Steps usually had been taken to select and train successors from among nationals of the countries concerned. It was recognised that the departure of the British staff concerned was in no way connected with their efficiency or ability, their reputation for which remains high. Some, including younger men with many years of useful life before them, and more particularly those with technical qualifications, have found employment on railways and in associated industries and on the staffs of consulting engineers in Britain and elsewhere. Last month the Government of Bolivia took over at short notice the working in that country of lines formerly operated by the British-owned Antofagasta (Chili) & Bolivia Railway Co. Ltd., which has found the conditions imposed on it intolerable. As a result, most of that company's British contract staff will now be leaving Bolivia. Once again British railway officers of high professional attainment will be forced to seek employment elsewhere.

### Mansion House Association Annual Luncheon

THE importance of free choice of the mode of transport for traders and manufacturers was stressed by Mr. L. A. Carey, Vice-President of the Mansion House Association on Transport, at the Association annual luncheon at the Connaught Rooms, London, W.C.2, last week. In modernising British Railways, he stated, the aim must be a streamlined system, such as would be created if the railways were being built anew. There were grounds for complaint by members of the Association, he added, in the slowness with which railway rates were sometimes quoted. He congratulated the Minister of Transport on his vigorous road building programme. Mr. G. R. H. Nugent, Joint Parliamentary Secretary, Ministry of Transport & Civil Aviation, emphasised that an efficient railway system was essential to the national economy. Decentralisation of authority to the Area Boards and Regions, he stated, had resulted in a more enterprising spirit. Skill and energy would be needed in quoting railway rates in view of increasing competition for traffic. The representatives of a wide variety of transport interests who attended the function included Sir Brian Robertson, Chairman of the British Transport Commission, and the General Managers of four of the six Regions of British Railways.

### Informing the Passenger

RECENT journeys in several Regions of British Railways have shown the progress made in improving audible and visual information to passengers in stations. The diction of station announcers, both men and women, has greatly improved in clarity. This is the result not only of painstaking instruction in announcing, but also of the use of improved equipment. New indicators at stations present train information clearly. Some, as at Shenfield, Eastern Region, described in our December 19, 1958, issue, consist of several panels in different positions in the station, co-ordinated electrically. More indicators are being installed as opportunity offers. A recent development is the installation of a uni-directional teleprinter network linking the train control office at Fenchurch

Street direct to the platform and booking office staff at most stations on the L.T. & S. Line of the Eastern Region. This enables messages to be transmitted simultaneously to stations on the network for immediate display to the public. The British railway companies not long before and after the war of 1914-18, were pioneers in installing station indicators of what were then modern patterns. Today the traveller receives essential information made possible by intelligent use by Regional managements of the techniques and products of the British electrical industry.

### The Union Tank Car Company

THE domed tank-wagon repair shop at Baton Rouge, Louisiana, described elsewhere in this issue, has been built by the Union Tank Car Company, incorporated in 1891, which owns, leases, and maintains a fleet of over 57,000 tank-wagons in Canada and the U.S.A. Though primarily serving the petroleum industry, the company's wagons also carry loads as varied as fertilisers, coal-tar products, vegetable oils, and molasses. The most recent design of tank-wagon, known as the "hot dog," has no underframe or dome, and there are many special-purpose types; they number 44 per cent of the total fleet. The company maintains 11 major service depots in the U.S.A. and four in Canada, besides eight minor repair depots. It also has two tank-wagon building plants and now constructs all its own vehicles. Altogether, some 4,000 hands are employed despite a high degree of mechanisation. During the 10 years 1948-57, the demand for tank-wagons rose rapidly, and the firm's carrying capacity increased by 45 per cent and its net income from £1½ million to nearly £3 million.

### The Rights of the Second Class Passenger

THE written judgment dated March 11 in the Court of the Transport Tribunal may be summarised as stating that a railway passenger has no claim in law to more than that for which he has paid. The judgment, in which Commander Gordon Frank Hawkes was the applicant and the British Transport Commission the respondents, is the most detailed and reasoned judicial survey of some aspects of passenger rights on railways in this country made in recent years. The Commission had instituted proceedings in February, 1958, against the applicant, claiming a small sum as excess fare because he travelled in a first class compartment while holding a second class ticket. Commander Hawkes pleaded inter alia that the conditions relied upon by the B.T.C. were unreasonable. Proceedings in the County Court were adjourned so that the Transport Tribunal might determine whether the conditions in question were reasonable. The applicant invited a declaration that certain of the "Conditions of Issue of Ordinary Passenger Tickets" were unreasonable, mainly because one condition stated that the Commission "may permit passengers who do not hold tickets of such class to travel in a superior class of accommodation . . . and the other users of such superior accommodation shall not be entitled to any refund on account thereof," but did not define the circumstances in which such permission was, or might be, given by officials and servants of the Commission.

### "Reasonableness" of Ticket Issue Conditions

THE Transport Tribunal held that the condition did not confer any power to grant permission to occupy accommodation of a higher class, and that the Commission was at liberty to waive any right which it might have chosen to enforce. The condition warned holders of first class tickets that they would not be entitled to any refund if the Commission admitted holders of second class tickets. This part of the condition may have its origin in *Jones v. Great Northern Railway* (1918), wherein it was contended on behalf of a first class passenger that it was a breach of his contract with the railway company for a person not holding a first class ticket to be permitted to travel with him. In the present case, the Transport Tribunal declared



that "if all the words in the Conditions which restrict the purchaser of a second class ticket to second class accommodation were struck out, the purchaser would be in no different position. He would be entitled at common law to what he had paid for, namely, such second class accommodation as was available in the train in which he chose to travel. He would no more be entitled to make use of first class accommodation if he found the available second class accommodation uncomfortable than is the purchaser of a ticket for the pit at a theatre to occupy a vacant seat in the stalls if he finds the pit uncomfortable." The Tribunal held, therefore, that the conditions were not unreasonable.

### Improving the Draughting in Steam Locomotives

WHATEVER conversion from steam to diesel or electric traction is in hand or planned, many railways will continue to use large numbers of steam locomotives for years to come. The problem of effecting economies by increasing the efficiency of the locomotive fleets, including some ageing machines, when no new steam engines are being built, and also of facilitating consumption of low-grade coal, is becoming increasingly urgent. One solution proposed is improvement of draughting reported to have resulted from fitting the ejector described on pages 330-332. The device was developed by Dr. A. Giesl-Gieslingen, of Vienna, a former pupil of the well-known Austrian locomotive engineer, Karl Goelsdorf. It is based on the principle of the "true ejector," and is claimed by its designer to be a precision instrument, though robust enough in construction to withstand normal service, which approaches theoretical perfection more nearly than any other front-end and has achieved important practical results. Over 500 locomotives in four continents have now been fitted with the ejector so as to increase power or use low-grade coal with, it is reported, encouraging results. In some cases the ejector has superseded other types of front end.

### Sir John Elliot

SIR JOHN ELLIOT'S decision to retire from the Chairmanship of the London Transport Executive closes yet another chapter in a very varied but always successful career; but it would be premature as well as irrational to assume that so vital a personality intended to rusticate. He is 61 years old on May 6 next and both mentally and physically he has more vigour than many who are his juniors in years. It is far more likely that he feels that in the last five and a half years he has seen the London Transport Executive through an important phase, which has been completed and that the time is opportune for a change, so that his successor may take over at a definite point in development. That would be in accord with his character and with the intention expressed privately a good many months ago not to "become the old man of London Transport."

His relinquishment of the Chairmanship of the L.T.E., coming so soon after Mr. K. W. C. Grand's translation from the General Managership of the Western Region to the British Transport Commission, indicates the final close of an era in British transport. These two are the last of the pre-war railway "personalities" still in service—both were second in command of their companies by the outbreak of war and both were in effect in control of their lines during the conflict while the General Managers were Members of the wartime Railway Executive Committee. They alone, both much of an age, had continued to hold high and essentially executive positions into 1959.

As will be seen from the necessarily brief summary of his career on page 337, Sir John Elliot has had an extraordinarily wide range of experience. He has been ever ready to pay tribute to the value of his early years on the Southern Railway and to the lasting benefit he obtained from the tuition of Sir Herbert Walker. He was fortunate also in his enjoyment of the complete confidence of Sir Eustace Missenden, the next General Manager of the Southern and the first Chairman of the Railway Executive formed on the nationalisation of the railways.

Variety has added a good deal to the spice of life for Sir John Elliot. The London Midland Region was a direct contrast to the Southern Region, but in turn he was Chief Regional Officer of each and then Chairman after Sir Eustace Missenden of the Railway Executive before becoming Chairman of the London Transport Executive. To each of these jobs he brought an open but inquiring mind, a restless energy and an infinite capacity for getting to know people and problems. Always he has been ready to take decisions and anxious to get things done. While at Euston, for example, he reviewed a number of schemes which had been put in abeyance, revived them, and got them underway, as well as initiating improvements. As a result he has left every office he has held in better fettle than when he joined it—with the possible exception of the Railway Executive, which he left because it was abolished! The winding up of the Railway Executive, for solely political reasons, must have been a great disappointment to him. As Chairman of that body he had reached the top of the railway ladder of executive responsibility. Moreover, he had guided the R.E. through its second phase, and had seen it evolve into a decisive machine.

He undertook no easy task when he went to the London Transport Executive. The great need there was for economy and expenditure on all sides was being cut down. The modernisation plan was still an idea and the new chairman had to face his officers with constant demands for cuts in costs. It was hardly an atmosphere conducive to popularity, but probably Sir John Elliot's greatest characteristic and asset always has been his ability to inspire both liking and confidence. He has the gift of being easy to approach without loss of discipline or leadership and this has served him well throughout his career. At London Transport he found a body of officers who, as he would be the first to agree, gave him splendid support as a team from the outset of his term of office. He is a leader who has always been generous in his recognition of the help he has received from others and there is no doubt of his appreciation of his team at 55, Broadway. Probably his greatest trial in recent years was the London bus strike which he fought so hard to avert. He has taken great pains always to meet and know his men, and even during the strike he found time to visit the garages and talk with the pickets—a sharp contrast to the practice of former years.

As with his General Managers of earlier days, so more recently he has enjoyed the full confidence and support of Sir Brian Robertson, the Chairman of the British Transport Commission. If any evidence of this were needed, it is given in the exchange of letters between Sir Brian Robertson and Sir John Elliot which we reproduce in full on page 343. Although he is leaving London Transport, he has recently joined the boards of Thos. Cook & Son Ltd. and the Pullman Car Co. Ltd. His interest in railway affairs is unabated and he is a francophile of some distinction. Many would not be surprised if he were to take a more prominent part in the affairs of these undertakings in the near future.

### Gowers Report—One Step Forward

SOMEWHAT unexpectedly the Government has decided to implement the commendation of the Gowers Report that the Factories Act should apply to locomotive sheds. The announcement was made last week by the Minister of Labour, Mr. Iain Macleod, to the Standing Committee considering the Factories Bill. He found an amendment moved by Mr. D. T. Jones to include this provision in the Bill went somewhat further than the limited extension of the provisions of the Factories Act which it sought but undertook to introduce an appropriate amendment at the Report stage of the Bill which will be taken shortly after Easter. An anomaly is thus to be removed for, as was pointed out to the Committee, as British Railways workshops are already covered by the Factories Act and locomotive sheds are not, when a locomotive undergoes a major overhaul the men working on it are subject

to the Act, but if the same men engage on a minor overhaul in a locomotive running shed they are not. Furthermore, industrial concerns such as collieries, the Port of London Authority, and power stations which have locomotive running sheds are already subject to the Act and only British Railways are excluded.

To bring the 300 or more running sheds within the orbit of this protective legislation should not impose any considerable burden on British Railways, nor upon the Factories Act inspectorate. It is doubtful if in many cases working conditions fall much below the required minimum standards laid down by the Ministry, and Mr. Macleod stated that his inspectorate should be able to deal with the additional work involved without increasing its establishment.

This step forward is a victory for the railwaymen on the Opposition benches who have been fighting for implementation of the recommendations to bring the railways within the Factories Act made by the Gowers Report in 1949. Periodically, questions have been asked in Parliament and debates initiated and, although the Government accepted the recommendations in principle as long ago as 1955 and promised legislation, nothing was done. When the Factories Bill now before the House was introduced the Minister was urged to bring the railways within its scope, but he resisted the pressure on the grounds it would be inappropriate to do so in such a measure. This prevented amendments being moved in Committee to carry out the Gowers proposals in full and it was not expected that this comparatively minor step forward would be agreed. No doubt this will encourage the Opposition to keep up its pressure for full implementation of the Gowers recommendations. These were, besides bringing the locomotive sheds within the scope of the Acts on the grounds that conditions within them resembled those in factories and were particularly dirty, that regulations similar to those applying to office workers generally should be required for railway offices, and that legislation no more burdensome than that applicable in similar conditions should apply to the half-million railway workers outside the scope of existing legislation.

The British Transport Commission has never opposed the substance of the recommendations, but it has resisted their enactment in legislation, maintaining that establishment of minimum standards is unnecessary as the consultative machinery required by the Transport Act, 1947, was adequate to ensure satisfactory working conditions. Much has been done by the Commission to improve railway working conditions in recent years, and with modernisation the opportunity is being taken to bring them up to date. The railwaymen maintain that much still requires to be done. Now that the Government has accepted the principle of legislation to bring the railways into line, the Commission may take further steps to implement the other. This would overcome the possibility of further legislative action.

### Co-operation between European Railways

THE co-operation in technical matters between railways in European and in some other countries made possible by the Office de Recherches et d'Essais (O.R.E.) at Utrecht, under the auspices of the International Union of Railways, was described last week by Mr. F. Q. den Hollander, who recently retired from the Presidency of the Netherlands Railways, in a comprehensive paper to the Railway Students' Association. Space allows mention of only a few of the many steps, described in the paper, aimed at increasing efficiency and reducing costs. The 29 member administrations of O.R.E. include British, Canadian, Belgian Congo, Indian, Irish and Persian railways, besides those on the Continent of Europe. The research work is done by 29 specialist committees and five groups of reporters, a total of 212 specialist staff drawn from 18 countries, including a number from British Railways. The findings are submitted to the Control Committee of O.R.E., which in turn reports to the Board of Management of the Union.

During research into riding qualities of passenger

vehicles, two trains, each composed of stock loaned by the railways participating in the tests, have run over 1,000,000 miles in continuous service on fixed routes, one in France and one in Germany. The riding of these trains has been observed and wear of the wheel tyres and bogies measured. The stability of the assembly of the two bogies plus the carriage or wagon body is still under study, and when completed should result in development of a satisfactory bogie.

Research into heating requires much special equipment, but Mr. den Hollander states that, through the good offices of the Austrian Government, O.R.E. now has the opportunity of building testing plant in Vienna, where it will be possible to conduct experiments at both lower ( $-15^{\circ}$  C.) and higher ( $+25^{\circ}$  C.) temperatures in static and dynamic chambers, besides tests in a wind tunnel of the dynamic chamber at up to 75 m.p.h.

Much work is being done on investigations into track and associated equipment, including fastenings, and the problem of insulation. As to motive power, the multiple-unit electric train, to run over lines electrified at different voltages, is being studied. This form of passenger train is likely to replace the present "Trans-Europe Express" (T.E.E.) multiple-unit diesel trains on international services, as electrification is extended. Because the couplings now used on the Continent require too much manpower, the O.R.E. is investigating the automatic coupler. Construction methods for rolling stock, to increase strength and save weight, are being examined, and designs of goods and passenger vehicles are being evolved.

The paper includes some remarks on working costs and depreciation. According to Mr. den Hollander, the percentage of outgoings for staff, presumably in Western Europe, is 42, for maintenance 18, and for depreciation 16 per cent. For depreciation purposes he takes 25 years as an average useful life of plant and equipment.

### Restricting Trade with Latin America

IMPETUS was given earlier this month to a movement to achieve self-sufficiency in railway motive power, rolling stock, and equipment of all kinds within the Central and South American bloc of states. On March 6, the final session was held in Córdoba, Argentina, of the first conference on production of railway material under the auspices of the United Nations Economic Commission for Latin America, C.E.P.A.L. The meeting was attended by delegations from Argentina, Brazil, Chile, Cuba and Mexico, which countries at present produce locomotives, rolling stock, and equipment. The objects of the conference were to investigate means of encouraging the manufacture of railway material in the Latin American countries, and to facilitate the placing of their excess production with railways in other States of Central and South America. Brazil and Chile, for instance, produce more wagons than can be used by the railways of these two countries. The conference believed that the excess could be placed in Argentina, which in its turn will shortly be in a position to export diesel locomotives.

One of the problems is to achieve agreement between the several Governments on a common policy of credit and customers' facilities. It was pointed out at Córdoba that the Latin American countries between them invested \$80 million a year outside their own bloc on railway material. About one-half of this related to passenger and goods rolling stock. Nearly all this \$40 million worth of material, it was contended, could easily be procured within Central and South America. Among the decisions made was that to compile by next month a list of the needs of railways in all the Latin American countries, taking into account replacements required, expansions planned and in hand of railway facilities, customs duties and regulations, taxation, and unification of standards.

This move to achieve self-sufficiency within a limited circle of states is likely to prove as illusory to its authors as most attempts to restrict the free flow of international trade. It is hard to see how exports of primary products

to countries outside Central and South America can continue if the Governments of Latin American states cease to allow free interchange of commodities, including the import of railway material from the countries which specialise in their manufacture. Such restrictive measures are likely to undermine confidence abroad and to cause unwillingness on the part of foreign manufacturers to supply Latin America with other industrial equipment.

The makers of railway material in Central and South American countries, moreover, lack the international markets which afford manufacturers of railway material in Britain and elsewhere a unique knowledge and experience of the needs of railways in varying environments and the best methods of satisfying these. Nor can the former be expected to possess the knowledge of techniques available to established manufacturers of motive power, rolling stock, signalling and other equipment for railways all over the world, who possess resources and experience, enabling them to pursue new developments, and are in constant touch with associated industries in highly industrialised societies where new and improved materials and processes are constantly being developed. The railways in Latin American countries are likely to be the sufferers in any ill-advised attempt to achieve self-sufficiency in an artificially restricted bloc of states. They might well lose the benefits they have long enjoyed through satisfying their needs in the normal course of unrestricted trade with countries where industry is best suited to supply their requirements.

### Progress with Second Indian Five-Year Plan

THE second Five-Year Plan for the railways in the Republic of India has had to be revised for financial reasons: mainly a shortage of foreign exchange affecting imports, and increases in prices generally. The chief provisions of the revised plan were: (1) doubling of nearly 1,600 miles and conversion of 265 miles of metre or narrow gauge to broad gauge; (2) electrification of about 800 miles; (3) introduction of diesel traction to increase line capacity where necessary; (4) modernisation and remodelling of marshalling yards; (5) improvement of signalling; (6) increasing line capacity by building new crossing stations, running loops, marshalling yards, and so on; (7) construction of new and improvement of existing workshops to facilitate rolling stock repairs and reduce dependence on imported stores; (8) renewal of 8,000 miles of track; (9) rehabilitation of existing and construction of new bridges; (10) increasing facilities for training; (11) provision of staff quarters and amenities; and (12) procurement of rolling stock.

Mr. K. B. Mathur, Member, Transportation, of the Railway Board, has pointed out that the railways are now a little more than half-way through the five-year period. The plan has been re-adjusted in the light of further financial restrictions. For instance on certain sections which were to be completely doubled, doubling is being confined to certain sections. Projects for re-modelling yards have been modified to meet immediate needs, leaving a margin for expansion as the traffic develops. By the middle of 1958, the Planning Commission has made an appraisal of the financial resources and the likely industrial developments, which indicated that an additional capacity for the movement of 54,000,000 tons of goods traffic was needed by the end of the Second Five-Year Plan against 47,000,000 tons envisaged when the plan was formulated, without exceeding the money allocation.

Drastic cuts have been made in the programmes put forward by individual railways for commencement in 1959-60. The Railway Board has stressed that no new work must be taken in hand unless absolutely necessary, and projects already under execution must be reviewed. Planning has had to be flexible. The resultant problems, as Mr. Mathur states, are very complex. Some of the capacity must be spare to meet eventualities, such as accidents, failures of equipment, and engineering restrictions. While the works are in progress, the departmental needs themselves grow. More departmental, material

trains, and engineer's possessions are needed and may tend to hamper movement of public traffic. Shortage and delay in procurement of steel have been a difficulty.

As regards electrification, it was intended originally to convert at 3,000 V. d.c., but it was decided later, on the advice of French railway electrical engineers and in the light of experience in France, to adopt a.c. Meanwhile the d.c. electrification of the Howrah-Burdwan suburban area, which had been sanctioned previously, proceeded, but further conversion was deferred until an assessment had been made of the practicability and advantages of a.c. electrification. To avoid the induction effect on the telegraph and telephone lines, it was necessary to arrange with the Posts & Telegraphs Department to change over to underground cables, which incidentally obviates the possibility of thefts of copper wire. Orders have been placed for 110 a.c. electric locomotives and arrangements made for installing overhead equipment and completing ancillary works. It is expected that electrification between Durgapur and Moghalsarai and between Asansol and Rourkela and Barajamda will be inaugurated before the end of the second Plan and that phased development of other sections will proceed so that electrification materialises progressively during the third Plan. One hundred main-line broad-gauge diesel locomotives of 1,850-1,900 h.p. have been ordered, 20 of which are already in service between Gomoh and Moghalsarai on the Eastern Railway; 25 more of these have been received by the South Eastern Railway. Diesel traction is being introduced on the Eastern and South Eastern Railways as an interim measure preparatory to electrification to increase throughput of traffic.

Improvements in signalling have been hampered by shortage of materials, though the position has improved. Signalling projects include provision of modern route relay interlocking at Kurla, near Bombay, on the Central Railway; extension of automatic signalling by stages on the Bombay suburban sections of the Central Railway to keep pace with intensification of services; and automatic signalling on the Sini-Rajkharaswan section of the South Eastern Railway to increase the capacity of the section.

Development of indigenous capacity for manufacture of imported stores has already been achieved and further steps are in hand. The Railway Board is considering building electric and diesel locomotives in the country and manufacturing heavy steel castings, roller bearings, and several types of signalling equipment. Studies of developments in other countries indicated obvious advantages in the use of bogie wagons equipped with automatic centre buffer couplers. The Board has subsequently designed, and placed orders for, bogie wagons for transport of coal to steelworks. The combination of four-wheel bogie wagons to form trains present some difficulty, but this, it is hoped, will soon be overcome. The use of bogie wagons will enable freight trains of 3,000-3,600 tons to be run with the existing crossing facilities against a maximum of 2,300 tons at present, and will ultimately lead to considerable increases in line capacity.

The decision of the Government to set up an oil refinery at Gauhati, in Assam, with an output of 750,000 tons, which will come into production by the middle of 1961, has created a movement problem not envisaged when the second Five-Year Plan was formulated. The development of capacity on the Barauni-Amingaon section of the North Eastern and North-East Frontier Railways has assumed some urgency. Work to stabilise the Assam rail link has already been effected and further measures are in progress. The requisite facilities to handle this traffic will also be provided in time.

The total provision for passenger traffic in the Plan, Mr. Mathur states, was for an increase of 15 per cent, but by an intensive rehabilitation of over-age coaches and engines, it is hoped that the additional seat-miles developed may be 25 per cent both on broad and metre gauges. This will be a significant improvement over the provision in the Plan. In the first two years, passenger traffic showed an annual increase of 4.25 per cent, but a decline has been noticeable recently and it may be that overcrowding will ease. In some trains the seat occupation ratio has been 40 per cent and below.



## Outlook for Railway Freight Traffic

(By a correspondent)

THE first issue of *Transport Statistics* for 1959 shattered any hopes that in the new year British Railways would begin to recover some of the freight train traffic lost since 1953. For four weeks to January 25 freight carryings totalled 18,590,000 tons, a decrease of 1,888,000 tons from 1958. That was a fall of 9 per cent below the poorest year in recent times, when freight traffic was 10 per cent less than in 1957. In the next four-week period to February 22, freight receipts dropped by fully £2,000,000, foreshadowing another loss of tonnage. The position of our railways as freight carriers is precarious, because movement of merchandise, minerals and coal in January were all the lowest for the first period of any year since 1948 and there are few signs of an early change in the downward trend of any class of traffic.

In the January period 281,000 fewer tons of merchandise originated than in 1958, a 9.5 per cent decrease; compared with 1953 over a million tons were lost, about a quarter of the quantity then put on rail. The Eastern Region increased its forwardings by 22,000 tons, or 5 per cent, but the other Regions had decreases varying from 6.6 per cent on the London Midland to nearly 20 per cent in the North East and Scotland.

The mineral tonnage of 3,822,000 was 777,000, nearly 17 per cent, below last year. In 1957 and 1953, when iron and steel industries were busy, the railways carried over 5 million tons. The lower output of these industries would account in part for the fall in coal class traffic of 831,000 tons, or 6 per cent, to 12,098,000 tons; from 1953 the drop was 1,413,000 tons, or 10 per cent. The productive capacity of our coal mines is shrinking and the National Coal Board doubts whether this year's demand for coal will exceed 200 million tons. These changes in coal output are bound to be detrimental to our railways, for last year 47 per cent of all loaded wagons carried coal and coke and would earn average receipts of over £9 apiece, while the working of coal trains was simplified by the abolition of private owners wagons in 1948 and improved methods of distribution, so that in January they turned out 49 per cent of the ton miles for all freight traffic.

Total ton miles amounted to 1,403 million, 111 million, or 7 per cent, fewer than in 1958. It was curious that the Western Region, which originated 10 per cent fewer tons, worked only 3.6 per cent fewer ton miles. The Eastern Region, on the contrary, with a decrease of 4 per cent in tonnage, worked 4.7 per cent fewer ton miles though recording a rise of 6,237,000 mineral ton miles, or 8.3 per cent, the brightest entry in the ton mile table. More plus signs in later issues of *Transport Statistics* would encourage our railwaymen who are striving to develop freight business in adverse conditions.

### PASSENGER TRAFFIC

The number of passenger journeys originated in 1958 is recorded as 1,065,382,000, a decrease of 10,751,000, or 1 per cent, from 1957. The Southern Region was responsible for nearly 40 per cent of the total journeys and increased the number of its passengers by 11,291,000, or 2.7 per cent. The only other Region to show an increase was the Eastern, which carried 5,553,000 more people, a rise of 3.2 per cent. In both of these Regions the improvement was entirely in second class travel; first class journeys were 3.4 per cent fewer on the Southern and 1.2 per cent less on the Eastern. The other Regions also carried fewer first class passengers, and the total number of travellers in the higher class declined by 1,756,000, or 7.5 per cent, to 21,760,000.

Passenger revenue of £139,433,000 was £821,000, or 0.5 per cent, less than in 1957. First class receipts of £15,051,000 were down by £155,000, or 1 per cent. The cost of providing first class accommodation is high and it is a question whether an adequate return is earned on the expenditure. In these latter days insufficient attention is paid to net revenue. For example, the much advertised diesel passenger car services failed to add to the total number of passengers last year. The cost of providing the services

would be high and the repairs bill for these new vehicles is bound to be substantial; a statement of the financial results of this expensive experiment is overdue. Freight receipts can no longer be counted upon to make good losses on passenger business.

## Letters to the Editor

(The Editor is not responsible for opinions of correspondents)

### Southern Region Public Relations

March 16

SIR,—Your fear, expressed in editorial comment last week, that the Southern is about to depart from its policy of telling the customer frankly what is wrong, is, I am glad to say, quite groundless.

Mr. P. A. White, Line Traffic Manager of the South Eastern Division, is introducing a temporary timetable for a very limited period on a limited number of services in connection with a limited amount of modernisation work. He is putting forward some departure times, not to mystify our customers but to help them get to work in time, despite the delays to services. And we have, in fact, told them exactly why we are doing this.

Of course you are right in pointing out the danger of an outcry from some quarters. Mr. White has taken this danger into account in deciding to announce a measure which will help the majority of passengers.

And I ought to point out, perhaps, that an adjusted timetable is precisely what very many passengers have been demanding during the past year. In fact, if it had been practical to introduce one earlier doubtless we would have done so.

Yours faithfully,

F. D. Y. FAULKNER  
Public Relations Officer,  
Southern Region, British Railways

Waterloo Station, S.E.1.

### The Pittsburgh & Lake Erie Railroad

March 8

SIR,—A paragraph in the Scrap Heap of March 6 likened the Pennsylvania & Lake Erie Railroad art exhibition to the L.N.E.R. poster displays in years that now seem far away. Scenes on the two railways differ widely. The P. & L.E. operates 221 miles of road, serving the Pittsburgh and Youngstown steel plants and then extends to Lake Erie, where ore is landed from ports on the Great Lakes and coal is shipped in exchange. Subjects for an artist are dull compared with the scenery in the L.N.E.R. 6,000 miles, stretching from the quiet beauty of East Anglia to the wild tracts of the Cairngorms and the West Highlands, with York, Durham and, above all, Edinburgh, passed on the way.

The P. & L.E. is one of the minor U.S.A. railroads which fared better in the lean year 1958 than the large companies in the Eastern District. Its earnings, before charges, dropped by one-fifth to \$7,891,200 against a fall on the New York Central, which operated 10,515 miles, of 60 per cent to \$11,824,200. In 1957 the P. & L.E. worked 5 per cent fewer ton-miles than in 1956, but still moved an average net train load of 2,300 tons at 15.5 m.p.h. Diesel motive power was used entirely and turned out 56,969 gross ton-miles in a freight-train hour, while the New York Central produced 51,861. When 1958 statistics are available in May, it will be possible to see how far the further decrease in traffic volume last year worsened these results.

Yours faithfully,

Clacton-on-Sea

R. BELL



## THE SCRAP HEAP

### New Lease of Life

After a lapse of 20 years passenger trains ran again recently on the narrow-gauge line between Colac, Beech Forest, and Weeaprounah, in the Western district of the Victorian Railways. The Railway Historical Society and the Kanyana committee organised four excursions from Melbourne earlier this month for people attending the Kanyana celebrations at Colac. The Victorian Railways transported eight narrow-gauge passenger carriages, now stored at Newport Workshops, on specially fitted railway wagons to the narrow-gauge lines.

### Out of Gauge

The wider Continental loading gauge, more particularly between station platforms, is an obstacle to the proposed exhibition in Britain and running between London and Manchester of representative Swiss Federal Railways passenger stock as part of the "Swiss Fortnight" to be held in London and provincial centres in October. The problem is still being examined. There have been difficulties in the past in movement by rail from works to port of vehicles built by British manufacturers to wider loading gauges for railways overseas. The problems were overcome, though running between London and Manchester seems impracticable.

### Derby-designed M. & G.N. Engines

The recent closing of most of the former Midland & Great Northern Joint Railway has prompted a correspondent to send us the photograph reproduced below of M. & G.N. No. 57, designed by S. W. Johnson, Locomotive Superintendent of the Midland Railway, and built in 1896 by Sharp, Stewart & Co. Ltd. The photograph was taken at Cromer Beach Station in 1905 or 1906

during the heyday of the M. & G.N.J.R. Whilst the locomotives conformed to Midland practice, except for their (at that time) dark yellow livery, the coaching stock, as the illustration shows, resembled that of the Great Northern Railway.

### Diesel that Came to Dinner

A diesel-electric locomotive of the Sarmiento (the former Buenos Ayres Western) Railway, running light, left the rails at Castelar, ran across a garden, entered the dining room of a private house where the occupants were having a meal, and stopped short of the dining table. No one was hurt.

### Midland Route Through the Pennines

A train, the "Thames-Clyde Express," makes its way south by climbing steeply up through Mallerstang, and, in the next hour or so, passes through some of the finest scenery in all Pennine Yorkshire. It comes into the county at Ais Gill, a collection of railwaymen's cottages at the summit of the line. The fireman can relax a bit then. He probably is not interested in the yellow bog asphodel which grows over the wall opposite the signalbox; nor in the inconspicuous moonwort up on the tops beyond; but he will know of the white pub a mile farther on, the Moorcock, that sports a resplendent red grouse as its sign.

As the train crosses the watershed into Garsdale, fieldfares fly noisily from the rowan berries at the line side. The train dives into a tunnel to emerge on a high terrace overlooking Dent Dale. . . . The locomotive's whistle shrieks into the smoke and blackness of Blea Moor Tunnel and, soon after emerging, one is looking down from the curve of Batty Moss viaduct into Chapel-le-Dale. . . . This is the beginning of the long descent of Ribbles-

dale. Up here it is a wild country of bents and peat-bogs, the breeding-ground of curlews and lapwings. Ribbleshead Station sends regular weather reports to the Air Ministry, and whenever I hear "Yorkshire Pennines" mentioned in a forecast I always think of the curlews sailing to and fro against the slopes of Wharfedale and the 24 grey stones arch of this great viaduct.—John Kirby in a B.B.C. broadcast.

### Unsealing a Tunnel

The restoration of through rail communication between Avezzano and Roccasecca, reported in our March 6 issue reminds a correspondent of wartime vicissitudes of railways in this part of Italy. The Germans, he recalls, had moved a Wagons-Lits restaurant car to the section between Antrodoco and Rieti, and "at night they just tucked themselves away in the tunnel at Antrodoco oblivious to the world at war." The line was heavily damaged at both ends, and there was no way out. When they retreated, they ran two wagons of mines into the tunnel and blew it in. The people of Antrodoco lived by the small locomotive depot there. A Canadian officer of Allied Military Government found the inhabitants deploring the loss of their livelihood.

He imported shovels and picks, and arranged opening up of the tunnel. The local people "brought mines out with their bare hands like oysters from their shells. Others cannibalised shot-up locomotives until they had one little tank engine ready for service. The overturned restaurant car, with its seats long lost, was put back on the track, and a box wagon knocked together." Eventually the Antrodoco-Rieti section was reopened, with the local dignitaries hanging on inside the flag-bedecked dining car.

### Spring Song

Up and down the goods yard  
Wagons clank and clatter,  
But, somehow, today  
It doesn't seem to matter.  
Gloomy stationmasters  
Start to smile once more:  
Winter's half forgotten,  
Summer's on before.

Engine drivers' noses  
Don't seem half so blue,  
Now that we're emerging,  
From the grip of 'flu'.  
Even Bill, the porter,  
Whistles in content,  
Plying broom and bucket,  
On ablutions bent.

In the station gardens  
Fresh, green life appears,  
Daffodil and crocus  
Laugh at winter's fears.  
Round the distant corner  
Comes a glistening train,  
Up with the umbrella,  
Spring is here again!

A. B.



Photo] [F. S. Middleton  
Midland & Great Northern Joint 4-4-0 locomotive designed by S. W. Johnson  
at Cromer Beach Station in 1905 or 1906, showing also coaches of Great  
Northern Railway pattern

## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### SOUTH AFRICA

#### Cape Town Station

Work will start within a few weeks on the first part of the superstructure of the deck to be built over the platforms of the new station in Cape Town. This part of the deck structure will cost about £114,000 and will take about nine months to complete. The whole deck will cost about £1,500,000. It will not be in full use until 1964, when the entire station should be finished. The new station, which will have 24 platforms, will come into use in stages. The administrative building is now nearing completion.

#### Umzimkulu River Bridge

The South African Railways Administration has for several years been engaged on a programme of replacing the old steel bridges on the Natal South Coast line with reinforced concrete bridges. During the past three or four years the tempo of the work has been increased and the longest bridge in the programme, that over the Umzimkulu River at Port Shepstone, is expected to be completed this year at a total estimated cost of £330,000.

The bridge will be 1,303 ft. in overall length and is sited at the mouth of the river close to the sea. It is a combined rail and road bridge, with a single-track rail deck, 16 ft. 6 in. wide on the seaward side and a separate road deck, giving a 28-ft. carriageway and two 5-ft. footpaths on the landward side. The bridge consists of 15 spans, each 75 ft. clear between piers, and provides 40 ft. clear height under the deck at high water.

The piers and abutments, with one exception, are supported on 14 ft. dia. reinforced concrete cylinder foundations, two under each pier and four at

each abutment. The exception is pier No. 14, which is carried on a large caisson foundation 50 ft. long and 14 ft. wide. All foundations have been taken down to solid rock. A short river training wall will be constructed from the old existing sea wall to connect up with pier 14, to provide a low outlet for the normal river flow and for small river craft to proceed to sea.

### INDIA

#### Rohtak-Gohana Line Reopened

The 20-mile Rohtak-Gohana line of the Northern Railway, dismantled during the second world war, has been reopened for passenger traffic. The restored line follows the old alignment. Besides 46 existing bridges, 22 new bridges were built on the 20-mile route, as the railway traverses a network of canals.

#### Branch to Etah

Etah, the only district headquarters in Uttar Pradesh not served by a railway, is to be linked by a 44-mile branch with Barhan, on the Delhi-Cawnpore main line of the Northern Railway.

#### Out-of-Gauge Loads

Lowering the track was necessary for movement from the port of Vizagapatam to the Bhilai steel project of three special trains conveying out-of-gauge loads. The problem facing the South Eastern Railway was passage of fixed structures between Vizagapatam and Bhilai via Vizianagram and Raipur. Insufficient height was afforded by the well wagons used. The track was temporarily lowered in three places, two near Vizianagram and one near Bobbili. At one overline bridge the track was

lowered 11 in. Immediately after passage of the third train, the track was restored to its normal position. Transit by the special trains to Bhilai took two days. Had it not been possible to move the consignments by rail in this way, clearing the traffic might have taken several weeks.

#### Doubling from Bhopal to Bina

The Planning Commission has approved the partial doubling of the Bhopal-Bina section of the Central Railway and the Anuppur-Katni section of the South Eastern Railway. Doubling of both sections is stated to have become necessary because of increase in traffic caused by higher production in the Central India coalfields. On the Bhopal-Bina section a total of 38 miles will be doubled, from Bhopal to Salamatpur, Pabai to Bareilly, and Bina to Bina Bridge.

### CHINA

#### Mounted Axle Works

The first works for the production of mounted axles in China was recently opened at Hsuanhua, in Hopei province, northern China. Its annual capacity has been reported as totalling mounted axles for 100,000 wagons.

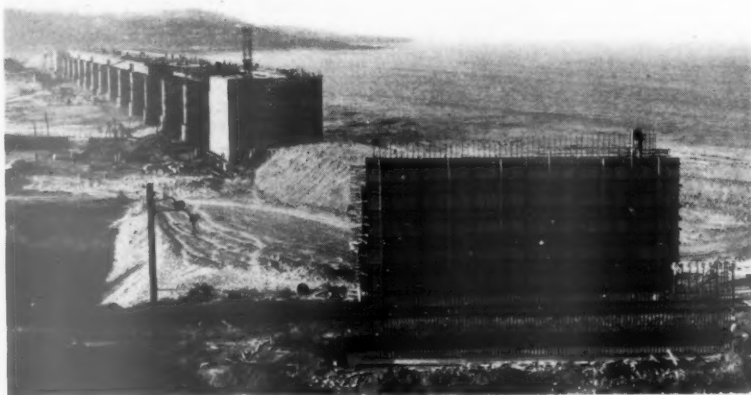
#### New Line in South West

A new railway, 380 miles long, has been built in the South West to connect Kweiyang, capital of the Province of Kwangsi, with Liuchow on the main line running from the Peking-Canton line to the Vietnam frontier. The new railway connects this mountainous and inaccessible province with other parts of the country, and also with the seaport of Tsam Kong (formerly Fort Bayard). The standard-gauge line was begun 20 years ago, damaged during the civil war, and reopened to traffic in 1958. The final section from Tuyun to Kweiyang, 70 miles of mountainous country, has now been completed. Neither electric nor diesel is contemplated at present for the Kweiyang-Liuchow line. When the railway from Chunking to Kweiyang is completed within the next year or so, this, and the Kweiyang-Liuchow line will form part of a trunk line from the extreme north to the south-west of China.

### CANADA

#### International Piggyback Service

The first international piggyback service between Canada and the United States will be inaugurated jointly this month between Toronto and New York by Canadian National Railways and the Delaware, Lackawanna & Western Railroad. The service is scheduled to commence on March 23 and is being estab-



Construction work in progress on the rail and road bridge across the Umzimkulu River, Natal South Coast line, South African Railways

lished to meet growing demands for piggyback handling of export, import, and domestic freight. It will be operated daily in each direction between New York, New Jersey, and Toronto Metropolitan areas, using railway-owned trailers.

• Tariffs were filed on February 18 with appropriate Commissions. They cover a line of commodity rates including food, glass and building materials, cleaning and washing compounds, and printed matter. Arrangements have been completed for through customs bonding and clearance, similar to that now in effect for normal rail traffic. It is planned eventually to extend this new piggyback service to additional areas.

## UNITED STATES

### Nine Miles of Rails on One Train

A trainload of long-welded rails was recently moved by the Great Northern Railway from Fargo, South Dakota, to Washington State, 1,200 miles, consisted of three diesel locomotives hauling 75 bogie flat wagons loaded with nine miles of rail. The rails weighed 900 tons. They were used for adding a further  $4\frac{1}{2}$  track-miles of long-welded material. There are already 160 miles of continuous rail track on the G.N.R.

### Mixed Power on the Union Pacific

Mixed power experiments have been conducted recently by the Union Pacific Railroad, which has in service 25 gas-turbine-electric locomotives of 4,500 h.p., and is in course of taking delivery of similar twin units of 7,000 h.p., the first three of which are already operating. Two of the 4,500-h.p. units are now being worked in multiple as a

9,000-h.p. locomotive, and a further experiment has been that of coupling a 4,500-h.p. gas-turbine-electric unit to two diesel-electric units of the "TP-9" type in an assembly of 8,500 h.p.

The main-line over which these trials are being made is that between Cheyenne, Wyoming, and Ogden, Utah, which goes over a summit level of 8,015 ft. at Sherman, and has lengthy 1 in 50 gradients.

## SPAIN

### Madrid Underground Plan

In 1954, plans for the building of an underground railway system in Madrid were under discussion, and the Government undertook to bear part of the cost. In 1956, the Madrid Transport Plan was approved and in 1957 work was begun on the first line, just under a mile long, to join the Tetuán de las Victorias Station with Plaza de Castilla.

A special plan covering the most urgent work was drawn up last year. Under it, the line now under construction will be completed in the second quarter of 1960. A second line of the same length, the Puente Vallecas Palomeras, now in the planning stage, will be completed in the first three months of 1961.

A third line is to be built between Las Ventas and Arturo Soria ( $1\frac{1}{2}$  miles), for completion in the first quarter of 1961. Some six months later, the fourth line, about half a mile long, joining Argüelles and Moncloa, will be opened to traffic.

During 1964, two further lines are planned for service. One of them, some  $2\frac{1}{2}$  miles long, will run from Plaza del Callao to Diego de León, passing

through Velásquez, while the second ( $1\frac{1}{2}$  miles) will join Puente de Toledo to Plaza del Callao.

## WESTERN GERMANY

### Avoiding Line at Ludwigshafen

A new avoiding line at Ludwigshafen, from the Mainz direction to the Rhine bridge, will be brought into use in time for the summer service, when the remaining fast trains using the Biblis route (including the "Rheingold") will be diverted to the electrified route through Worms, crossing the Rhine at Mannheim instead of Mainz-Süd. By avoiding the previous reversal at Ludwigshafen Hauptbahnhof, the new line will permit through running without reversal from Cologne to Basle and Stuttgart.

## NETHERLANDS

### Underground for Rotterdam

The new Central Station in Rotterdam is to be linked by an underground railway, 3 miles long, with the left bank of the River Maas. The line is to underpass the Maas by a tunnel some 3,280 ft. long. There will be six intermediate stops. The cost for building the line, and for rolling stock has been calculated at some 139,000,000 guilders. Trains will cover the distance in 12 min., and the capacity of the line will amount to 30,000 to 40,000 passengers an hour in both directions. The Municipal Building Board and the municipally-owned Rotterdam Tram Undertaking are reported in favour of the scheme as it would considerably ease the Rotterdam traffic problem.

## Publications Received

*Mobile Radio Telephones*, by H. N. Gant, London: Chapman & Hall Limited, 37, Essex Street, W.C.2.  $8\frac{1}{2}$  in.  $\times$   $5\frac{1}{2}$  in. 125 pp. Price 21s.—This book has been written especially for those people constantly dealing with and organising transport. The author concerns himself with the uses of mobile radio telephones from a commercial point of view and discusses in full its application, benefits, and limitations. The considerable growth in all parts of the world in the use of radio communication on very high frequencies between fixed and mobile stations has resulted largely from the technical developments which started during the war years and which, continuing since, have made possible small, reliable, and relatively simple equipment for very high frequency radio telephony. Such equipment is ideally suited to the needs of railway operating. Examples are given of the improvement in operating

efficiency which may be effected by the use of radio communication, and economic considerations are discussed. While the book will afford little new information to the qualified design engineer it will provide common understanding between layman user and the skilled technician responsible for installation and maintenance.

### *Welding Rods for Non-Ferrous Metals.*

—A 13-page booklet "I.C.I. Welding Rods and Brazing Materials" has been issued in completely revised form by the Metals Division of Imperial Chemical Industries, Limited. It devotes a page each to the welding of eight types of alloy including titanium, and two further pages deal with brazing processes. There are descriptions in tabular form of welding rods, giving their size, range, purpose, process for which intended, flux to be used, and melting point. Methods are suggested for making use of the newer processes and filler materials available to allow greater flexibility of joint design.

Details of packaging are given for the various I.C.I. welding rods and brazing materials, together with the colour code used for easy identification. Copies of the booklet are obtainable from Imperial Chemical Industries Limited, Metals Division Headquarters, P.O. Box 216, Birmingham, 6.

### *Abbreviations of Associations, Institutions, Research and Trade Associations.*

—This booklet, reprinted in an enlarged and revised form, is published by the British Electrical & Allied Manufacturers' Association primarily for its members, but copies are also available to any other interested organisation or individuals. It was first printed in 1957. In selecting abbreviations to be included in the book from the many which are in constant use, the choice has been based on those which are likely to be met by those in the electrical and allied industry. Copies are available from the B.E.A.M.A., 36, Kingsway, London, W.C.2, price 1s. 6d. including postage.



## Improving the Draughting of Steam Locomotives

*Application of the principle of a true ejector to locomotives front ends*



*Austrian Federal Railways 2-10-2T and 4-8-0 locomotives fitted with ejector, ascending 1 in 40 gradient on Semmering line. Note smokeless combustion*

ATTEMPTS have been made for many years to find the ideal front-end for steam locomotives and hundreds of different designs have been patented. Some have succeeded better than others but even the best left room for considerable improvement. Dr. A. Giesel-Gieslingen, of Vienna, has produced what is claimed to be the answer to one of the most difficult problems facing the locomotive designer. The theory underlying this front-end arrangement is that of the true ejector.

In an ejector are a mixing cone and a diffusing cone, separated by a form of

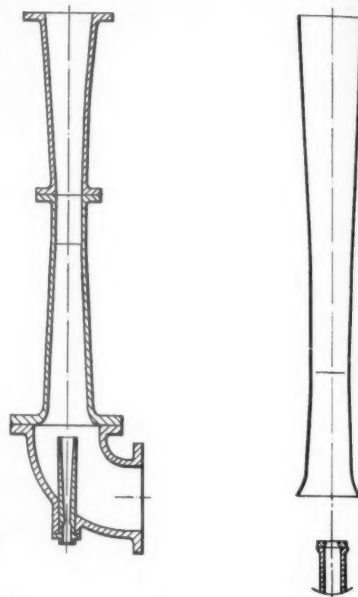
choke. The diameter of the true ejector is small in relation to its total length. It may be for this reason that it has never been thought possible to apply the principle in full to the draughting of a locomotive, as the length of a single true ejector capable of dispersing such a mass of steam and gas would be far too great for normal loading gauges. Despite the pioneer work on draughting done by Webb, Chapelon, Lemaitre, Kylala and others, it is only comparatively recent advances in aerodynamics that have made it possible to formulate rules for draughting.



*Indian State Railways "WP" class locomotive, showing checking of uniformity of flow from ejector*

Although double and multi-jet chimneys frequently gave better results than the classic single chimney arrangement, study of front-ends led Dr. Giesel to realise their imperfections. Well-designed double chimneys usually include some kind of mixing cone and choke, but there is not enough height left for a diffusing cone with an appreciable rate of energy conversion.

Multi-jet blast pipes combined with a round chimney reduce the height required for mixing gas and steam by virtue of the small individual nozzles, but a necessarily wide chimney does not permit sufficient initial acceleration of the gases, and the gain from the greatly reduced kinetic energy at the chimney



*Figs. 1 and 2—Typical true ejector and cross section (right) of Giesel ejector*

outlet is largely offset by a high "shock loss" during the mixing process, caused by the high velocity differential between steam and gas. In both cases, therefore, an essential part of the true ejector is missing. They succeed better than the classic arrangement because they are a stage nearer this principle.

### Evolution

It seemed at first that the problem could be solved simply by installing a number of small true ejectors. This would have resulted in a battery of separate nozzles and chimneys and other inconveniences in practice, and caused considerable gas friction within the small-diameter tubes.

By locating the exhaust nozzles fan-wise along the smokebox centre line, it was possible to use a single chimney of oblong section with such flow areas





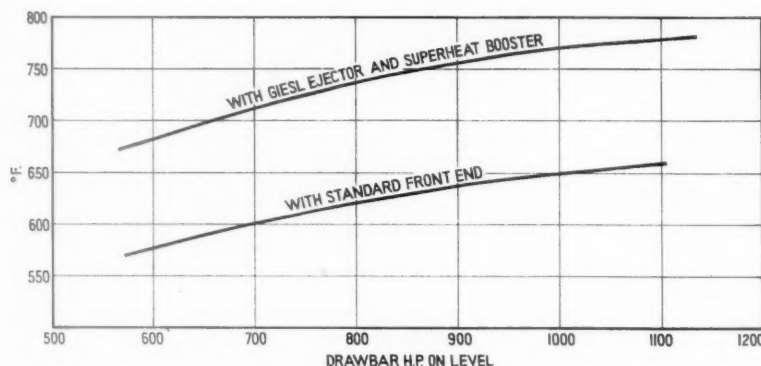


Fig. 6.—Effect of superheat booster on working steam temperatures of Austrian Federal Railways Class "78" 4-6-4T engine

the bottom of the smokebox. Towards its outlet, the exhaust nozzle is divided into seven rectangular orifices, separated by bridges, which are hollowed, drilled and reamed to form De Laval jets which form the blower.

At each side of the row of orifices is a hard steel plate,  $\frac{5}{8}$  in. thick, secured to the exhaust nozzle by three studs and slotted so as to be able to slide laterally and adjust the area of the orifices.

The chimney is of fabricated pressed steel in two or three sections. Those within the smokebox are easily detachable to allow full access to the tube plate and superheater header. Because of the small width of all these parts, 5 to 8 in., tube cleaning may be carried out with a minimum of hindrance.

The blast pipe and chimney are held together by lugs and key-bolts. Alignment of blast pipe and chimney is effected automatically once the key-bolts are in place.

An opening is cut in the top of the smokebox, the blast pipe bolted into place, and the chimney secured to the blast pipe. The smokebox cover plates, shaped to fit each type of smokebox, are then welded into position to secure the top segment of the chimney in position and cover the hole left by the

previous chimney. The whole operation is frequently done in locomotive depots in 25 man-hours.

When the locomotive is in steam, the orifices are adjusted to give the required draught intensity and an even exhaust flow at the chimney outlet. Each class of locomotive has a pattern of gas flow within the smokebox peculiar to itself and it is often found necessary to have a wider opening at one end of the exhaust orifices than the other to obtain the uniformity of gas exit velocity essential to correct tuning. Checking the uniformity can be done simply by passing a feeler over the top of the chimney as shown on page 330.

#### Effects

Claims for the Giesl ejector are reported to have been substantiated by the performance of over 500 locomotives fitted with it. The claims are: (1) Its use permits a locomotive to operate with 50-75 per cent reduction in steam chest back-pressure for the same smokebox vacuum,\* or alternatively with

\* In some isolated cases this has not been possible because of peculiarities in the design of the exhaust pipes. There is nevertheless a marked increase in smokebox vacuum, which allows a superheat booster to provide the expected increase in efficiency.

much higher smokebox vacuum for the same back-pressure, or both in lesser degrees. (2) Front-end limit is eliminated. (3) Locomotives which have never been free-steamers can be transformed. Normal locomotives are able to haul greater loads and abnormally low-grade coal can be successfully burnt. (4) Black smoke and exhaust noise are much reduced. (5) The ejector has a markedly even draw on the fire.

In general, the harder the engine is worked, the better the economy which has been as high as 25 per cent in some cases. This applies equally to oil-fired and coal-fired locomotives.

#### Superheat Booster

An ancillary which would not be practicable without the efficiency of the ejector is the superheat booster. This was evolved in conjunction with the Austrian Federal Railways so as to raise the temperature of the superheated steam in some of the older and less efficient locomotives, so affording economies in both fuel and water, with a minimum of expense.

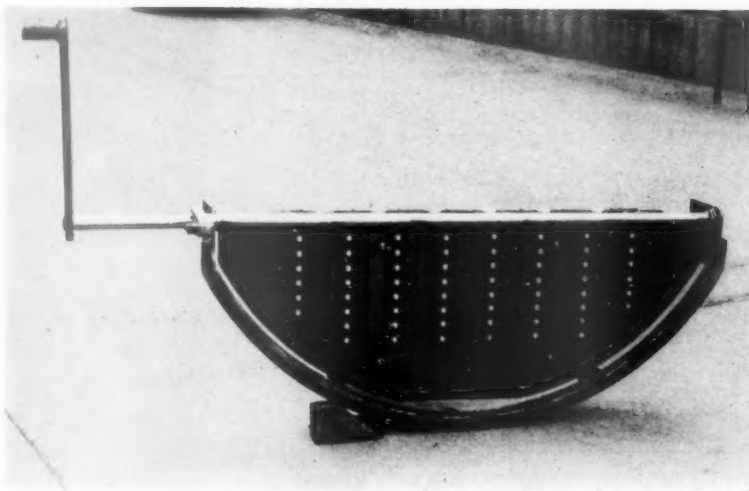
The ejector can be set to give a large increase in smokebox vacuum, which causes a greater gas flow through the tubes and superheater flues. While maintaining a normal gas flow through the tubes, it is possible to divert a higher proportion of gas through the flues and thus increase the superheat temperature by more than 100° F. This is achieved by throttling the tubes both in the firebox and smokebox.

In the smokebox, the throttling is done in two ways. The tubes below the bottom superheater flue are throttled by means of a single baffle plate, while those not covered by the baffle plate are dealt with by individual caps.

In the firebox it is necessary to compensate for the reduction in gas flow through the tubes. This is done by means of ferrules in the tube ends.

Fig. 6 shows the effect of throttling on the working steam temperature of an Austrian Federal Railways, Class "78" 4-6-4 tank engine. The 22-element superheater now gives 720° F. at medium performance, or as much as 38 elements would produce in an ordinary boiler of this size. As a result of greater thermal expansion due to lower back pressure, there is no appreciable increase in the mean smokebox temperature. The boiler efficiency remains practically the same. No blocking of tubes by ash has been recorded.

The presence of the superheat booster causes a strong draught about the bottom of the smokebox at the periphery of the baffle plate. This throws the cinders well forward into the gas stream and keeps the smokebox clean. The locomotive is comparatively insensitive to the grade of coal being used because the higher boiler resistance, almost double in most cases, minimises the influence of the varying resistance of the firebed. No case is reported of jamming or distortion of a superheat booster. Wear through abrasion is stated to be negligible.



Baffle plate of Giesl-Altman superheat-booster with frame

## West-to-East Rail Connection through Persia

*Closing two gaps in the link between the Bosphorus and Pakistan and India*

(By a correspondent)

THE Governments of Turkey, Persia, and Pakistan are co-operating in completion of a west-to-east rail link which would afford connections between European railway systems, via the Bosphorus ferry, and Turkey-in-Asia, Persia, and the railways of Pakistan and India. There are at present a wagon ferry and a steamer service for passengers across the Bosphorus between Istanbul and Haydarpasa. The amount of goods traffic between Europe and Eastern Persia and Pakistan over a railway through Persia is unlikely to be great even after eventual completion of the rail-and-road bridge over the Bosphorus. Most of the goods traffic over a direct railway between Persia and Turkey would probably be between Persia and Turkey or shipped through

Van have been surveyed and work has started on some of the buildings and installations. The Government of the United Kingdom has agreed to contribute £100,000 worth of construction equipment, mainly heavy lorries.

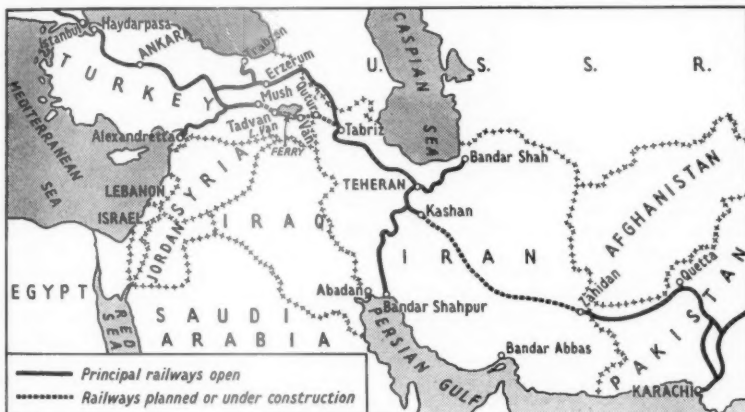
In Persia, the Teheran-Tabriz section has been in operation since April, 1958. Construction was difficult, with many tunnels and bridges. An air survey up to the Turkish frontier has been completed and the alignment fixed. The British Government is granting £100,000 of aid, under the Baghdad Pact, to Persia for purchase of construction equipment.

The Government of the U.S.A. has allocated \$2,100,000 for the Mus-Tabriz project, of which about \$200,000 was allocated to survey costs and the balance earmarked for the Persian portion of

ments of Pakistan and Persia agreed that the western extremity of the line, between Zahidan and the frontier, should be transferred to the Persian State Railways, but continue to be worked by the N.W.R. Passengers and baggage are to be booked to the frontier stations, Koh-i-Taftan (east-bound) or Mirjawa (westbound) whence they will be re-booked.

The gauge of the new lines in Turkey and Persia is 4 ft. 8½ in. From Zahidan the gauge of the existing line is 5 ft. 6 in., which is that of the North Western Railway of Pakistan and of the broad-gauge lines with which the N.W.R. connects in the Republic of India. It is not known whether transshipment is envisaged at Zahidan, or whether the Zahidan extension of the N.W.R. is to be converted to standard gauge as far as some more convenient transshipment point. A direct line south-eastwards across Baluchistan from a point on the Zahidan extension to Karachi is reported to have been considered, but it would be through difficult country and costly to build. A break of gauge would be a considerable handicap to traffic between Pakistan and the West.

Nearly all traffic over the Persian State Railways is now diesel-worked, and a large proportion of traffic, both goods and passenger, over the N.W.R. Because of the availability of fuel, traffic over the new line is likely to be diesel hauled.



*West-to-east connection through Persia, showing the two links under construction and projected, and lines to Alexandretta and Trabzon*

Turkish ports. The development of the ports of Iskenderun (Alexandretta), on the Levant, and Trabzon (Trebizond), on the Black Sea, is being considered by the Turkish and Persian Governments. A railway route between Persia and the Mediterranean or Black Sea would lessen dependence on the sea route through the Suez Canal.

There are two gaps in the direct railway link between Turkey and Pakistan. One is between Mus, in Eastern Turkey, and Tabriz, in Persia, and the other between Kashan, in Persia, and Zahidan. The latter point, though in Persia, is terminus of a branch of the North Western Railway of Pakistan connecting with Karachi, the Punjab, and the Indian railways.

The direct route between Turkey and Persia at present passes through U.S.S.R. territory. The Mus-Tabriz section involves a ferry across Lake Van. Construction has begun of the first section to the western shore of the lake. The ferry harbour sites on Lake

the link. Applications have also been made by the governments of Iran and Turkey to the Development Loan Fund for assistance for this project.

### Connection with Pakistan

The Persian State Railways have begun construction eastwards from Kashan towards Zahidan. The intention is to complete the first 62 miles, while a preliminary survey is made of the remainder. The Government of Pakistan has offered technical help for the survey of the route across Persian territory. Meanwhile, the problem of financing construction of this final section has not yet been settled.

The branch of the North Western Railway to Zahidan was built during the war of 1914-18. During the second world war military and other stores were shipped to Karachi and conveyed by rail to Zahidan, and thence by road to Black Sea ports for onward movement to U.S.S.R.

On February 16, 1959, the Govern-

**DECLINE IN STEEL OUTPUT.**—Steel output in February declined to an average of 349,000 tons a week. This was 18 per cent lower than in February, 1958. The Iron & Steel Board has stated that the 9,200 ton decline from the January level of production was due partly to a strike at one of the main steel companies and partly to mechanical difficulties; otherwise production showed little change.

**CONOID ROOF FOR OXFORD ROAD STATION, MANCHESTER.**—Oxford Road Station, Manchester, British Railways, London Midland Region, is being rebuilt as part of the modernisation programme and the conoid roof has just been erected. The station concourse, containing the ticket office, enquiry office, and waiting-refreshment room, is on a tapering site. Conoid shells were chosen for the roof structure because this form of construction is easily adaptable for a triangular site and allows uninterrupted floor space and good natural lighting. Timber is being used, partly to reduce foundation loads. The concourse is roofed with three conoids, ranging in width from 97 ft. 3 in. maximum to 41 ft. 6 in. minimum. The shells are made up of three layers of tongued and grooved boarding nailed and glued. The laminated arches and ties are being pre-fabricated as complete units. The station was designed by Mr. W. R. Headley, Regional Architect, under the direction of Mr. A. N. Butland, Chief Civil Engineer, London Midland Region.



## Road Vehicles through Alpine Railway Tunnels

*Increasing traffic on flat wagons through four major Swiss tunnels, with intensive services at peak periods*



*Detrainment at Brigue, at the north end of the Simplon Tunnel*

SINCE before the war of 1939-45 the Swiss railways have operated with increasing commercial success services for private motorcars, motor coaches, lorries, and motorcycles, and, more recently, motor scooters through Alpine tunnels by trains of specially built flat wagons. The stations at each end have been specially arranged for the loading and offloading of road vehicles. The tunnels through which services obtain at present are the Gotthard, over 9 miles long, and the Simplon, over 12 miles, on the Swiss Federal; the Lötschberg, over 9 miles, on the Berne-Lötschberg Simplon Railway; and the Albula, over 3 miles long, on the metre-gauge Rhaetian Railway. Coaches and

lorries are not, however, conveyed through the Albula because of the restricted loading gauge; the largest vehicle permitted is a car seating not more than eight persons. Cars traversing the Lötschberg Tunnel frequently also go through the Simplon tunnel or have come from it.

Traffic is highly seasonal and very much influenced by the weather. In the winter, when the passes are closed, the motorist on a through journey has no alternative to the railway service, but at that season there is no ordinary holiday traffic and daily user of the service is not great. In the summer traffic is heavy, especially of private vehicles whose owners are

pressed for time or wish to avoid the bad weather which can be encountered in the passes.

Maximum traffic is generally at Easter, when mountain roads often are still snowbound. The Gotthard Pass, for example, usually is still closed at this time and on Easter Monday, April 2, 1956, no fewer than 32 trains each way of road vehicles had to be run through the tunnel besides the necessarily augmented holiday passenger and any ordinary freight traffic. These trains conveyed 2,210 road vehicles. From March 29 to April 3 inclusive, over the Easter holiday period, 8,607 motorcars, 89 motor coaches, and 1,082 motor cycles were conveyed through the Gotthard Tunnel.

### Growth in Traffic

The following figures give the numbers of motorcars seating up to eight conveyed through the Gotthard and Simplon tunnels from 1950 to 1957:—

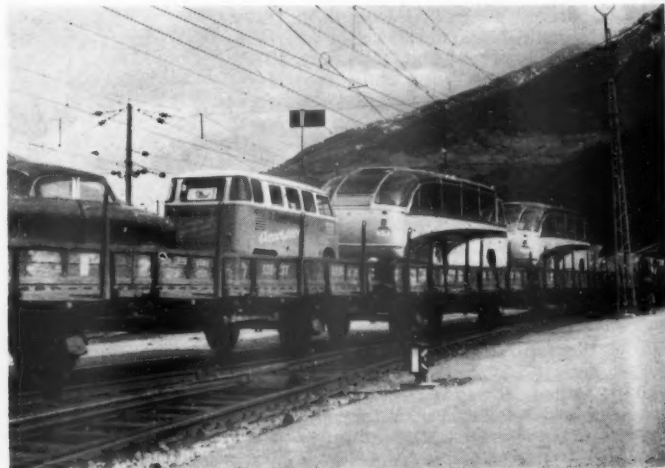
	Gotthard Tunnel	Simplon Tunnel
1950 .. .. .	31,190	5,378
1951 .. .. .	48,673	8,445
1952 .. .. .	48,035	8,131
1953 .. .. .	44,815	6,130
1954 .. .. .	55,709	7,982
1955 .. .. .	83,294	13,488
1956 .. .. .	102,750	17,337
1957 .. .. .	88,263	16,138

The total for all classes of vehicle for the Gotthard Tunnel for 1937 was 10,015. Out of a total of about 250,000 to 300,000 road vehicles now using the Gotthard approaches annually some 140,000 to 190,000 go over the pass and about 110,000 use the special trains, through the tunnel, which are operated at approximately hourly intervals.

(Continued on page 336)



*Trucks carrying motor vehicles in Flüelen Station on the Gotthard route*



*Train loaded with motor coaches and other vehicles about to pass through the Simplon Tunnel*



## Domed Repair Shop for Tank Wagons

*More work handled than in larger shops of ordinary design*

FOR its tank-wagon repair depot at Baton Rouge in Louisiana, the Union Tank Car Company of America selected a dome-shaped design of building providing a floor area of 110,000 sq. ft. entirely unobstructed by internal roof supports and costing about £3 a sq. ft. It is claimed that this is the largest circular building in the world without internal supports, the largest dome in existence, and the first all-welded geodesic dome fabricated entirely of steel. This £35,700 building is part of a complete repair installation involving an expenditure of three times that sum including equipment, paint

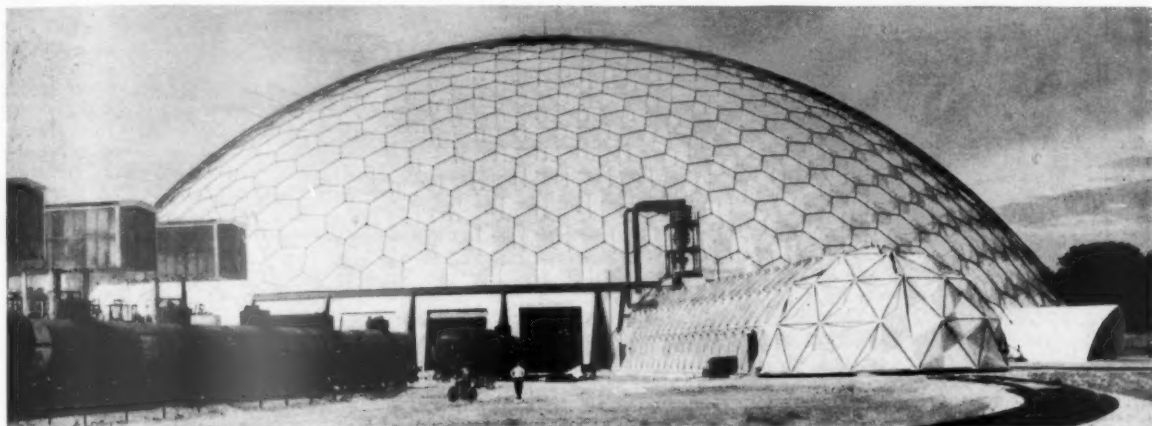
shop, sidings and other facilities. It covers 36 acres. Though smaller than several other installations designed for the same purpose, this shop is stated to be able to handle a much greater volume of repair work for the following reasons.

The shop in some respects resembles a locomotive roundhouse in its layout, and so enables unimpeded movements of wagons into and out of its 36 radiating tracks, 30 of which lead into repair bays and six are access tracks from the yard and paint shop. Four of the repair bays are devoted to tank cleaning, 10 to chassis repairs, 14 to ordinary tank repairs, and two to heavy tank repair

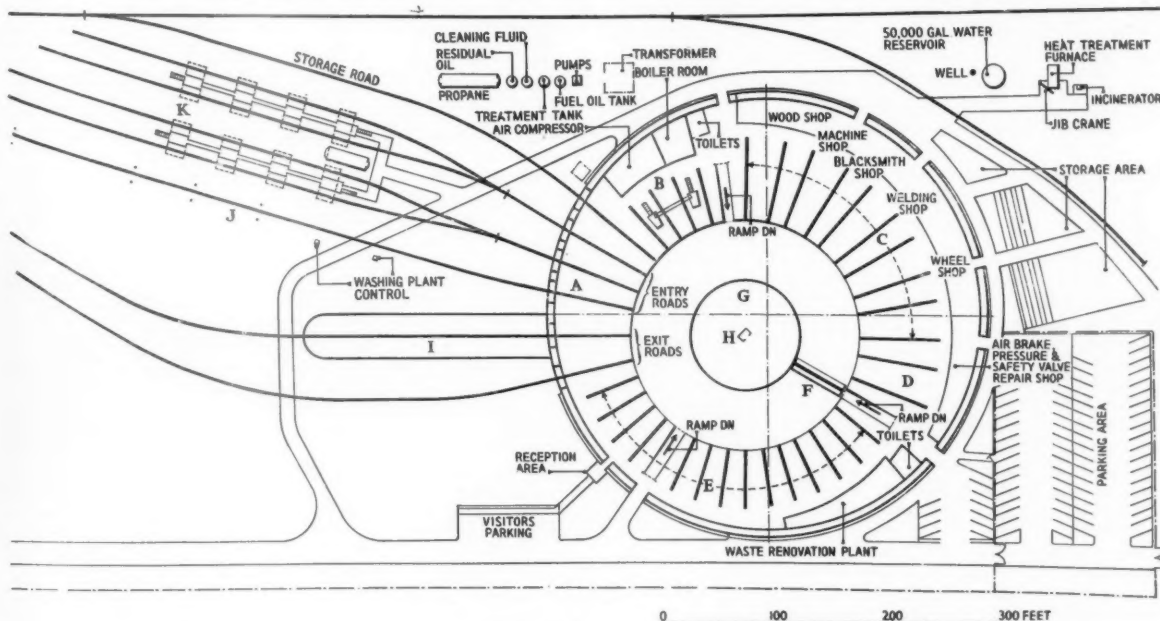
work. The speed of the repair line-flow does not, therefore, depend on that of the slowest job in hand as is the case of a normal shop. Unlike a locomotive roundhouse, there is no central turntable but instead a radial traverser feeds the repair-bay and other tracks.

### Dome Within a Dome

The central space covered by the turntable of a roundhouse is occupied by a circular enclosure surmounted by an inner hemispherical dome, sited 25 ft. off the centre of the outer dome. The enclosure and inner dome are



*Tank-wagon repair dome with cleaning plants on the left and paint tunnel (centre, right)*

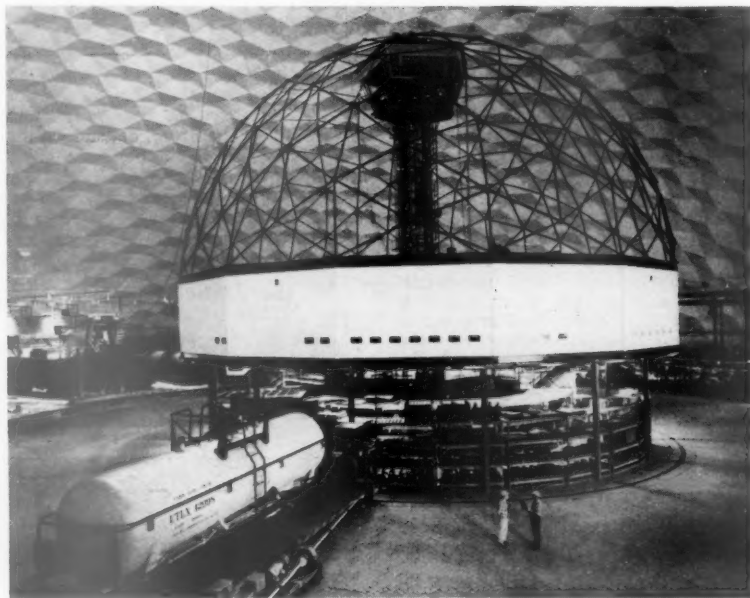


- A. Inspection points on entry roads
- B. Four roads for cleaning insides of tanks
- C. Ten general-repair roads
- D. Two heavy-repair roads

- E. Fourteen tank-repair roads
- F. Circular traverser
- G. Inner domed area housing stores, offices, etc.
- H. Control tower

- I. Paint tunnel
- J. Tank-wagon external washing plant
- K. Special cleaning plant for acid and gas tanks

*Plan of Baton Rouge domed repair depot with attendant ordinary and special cleaning plants and paint tunnel*



*Interior of outer main dome with inner dome in centre and tank wagon on circular traverser in left foreground*

100 ft. in dia. and 80 ft. high. They house an administrative office, stores, employees' accommodation, and an elevated glazed control room overlooking the whole shop floor from close under the roof of the inner dome.

#### **Main Outer Dome**

The main outer dome is a 384-ft. dia. quarter-spherical shell 120 ft. high, which in effect is a three-dimensional continuous curved truss with a depth of about 4 ft. Its inner tension-member system consists of 321 hexagonal  $\frac{1}{4}$ -in. steel panels welded together and forming the weathering surface. The outer member is composed of a similar

number of corresponding hexagonal compression panels composed of 4-in. steel tubes each 9 ft. long and of  $\frac{1}{4}$ -in. tension rods.

A feature of this whole structure is that it has only seven components:  $\frac{1}{4}$ -in. steel sheet, 4-in. tubes,  $1\frac{1}{2}$ -in. and  $\frac{1}{4}$ -in. rods, 2-in. sleeves, and  $1\frac{1}{2}$ -in. nuts and washers. Erection was with long-jib cranes and without any scaffolding. The steel panels with their outer tube-and-rod stiffening were fabricated at site, and the complete panels were lifted and placed in position as part of the dome by crane.

It is of interest that the external surface of the steel sheets is painted yellow

to reflect the sun's heat and accentuate their tensioning function. The outer framework of tubes and rods is painted blue to absorb this heat and increase compression. Interior painting is off-white.

#### **Illumination of Dome**

As there is no admission of natural light to the dome except through a 4-ft. opening at the apex, special attention has been paid to the artificial lighting. It includes a 332-ft. dia. circle of 106 mercury-vapour lights suspended 34 ft. above the shop floor.

Adjacent to the repair shop is a paint-tunnel 200 ft. long, 20 ft. high, and 40 ft. wide of similar construction to the repair-shop dome. One of the six tracks entering the dome passes through this tunnel. After repair each tank-wagon enters a Vacublast sand-blasting unit in the tunnel where it is prepared for painting in 6-7 min. as against 4-8 man-hours formerly required. It then enters a pre-heating oven for quicker and controlled drying of the paint. Subsequent stencilling is facilitated by the use of magnets and a photographic slide projector. The whole paint-shop operation is thus completed in 3 hr. compared with three days by conventional methods.

#### **Wagon Cleaning and Repair Procedure**

According to procedure, as each wagon approaches the dome it is automatically cleaned, and if it has contained liquefied petroleum gas or acid this is by special treatment. It is then inspected on entering the dome to determine what repairs are required, and sent by traverser to the appropriate repair bay. After repair it goes by one of three tracks (a) to storage, (b) to return to service, or (c) through the paint-tunnel. An editorial note on another page outlines the concern owning this unusual repair depot.

#### **Road Vehicles through Alpine Railway Tunnels**

*(Concluded from page 334)*

The increase in the traffic, and the irregularities in the demand inevitably arising from local conditions, led the railway authorities to take special measures to improve the facilities at the stations concerned. For the Gotthard these are Göschenen to the north and Airolo to the south, both adjoining the tunnel portals, but facilities are available at other stations, from which, however, no immediate conveyance can be guaranteed. For the Simplon Tunnel the stations for the special service are Brigue, in Switzerland, and Domodossola, in Italy. The latter station is some 12 miles from the tunnel mouth, and arrangements are in contemplation to give facilities at Iselle, the first station in Italy and immediately adjacent to the southern portal, so as to shorten the rail journey.

The block sections in the Gotthard Tunnel, it is understood, are to be

further shortened to give a 3-min. headway. As the headway on the approach lines is 7 min. this will enable a train of road vehicles to be dispatched between two ordinary ones. The regulation of this and other traffic is now in the hands of a central traffic controller who, from the information reaching him, is able to arrange in time to meet the probable demands and allocate flat wagons to the best advantage. The working has in any case been accelerated since permission was given for persons in ordinary motorcars to remain in them while going through the tunnel, a concession which has been greatly welcomed and has added to the popularity of the service.

#### **Traffic Regulation**

To aid the traffic controller it is now the practice to take a census of traffic on the approach lines, as for example at Flüelen to the north, and Biasca, to the south, of the Gotthard Tunnel, so that information on demands for accommodation is available about one

hour before the vehicles concerned may be expected to reach the entrainment stations. If, however, a sudden demand proves too large to handle, some accumulation of road traffic on the approaches is unavoidable and drivers may find themselves stopped for a time, perhaps far from facilities for rest or refreshment. A scheme has been under consideration with the motor organisations for traffic regulation, at least to ensure that any detention of vehicles is near inns, cafés, and so on. Revision of charges and simplification of methods of payment is also contemplated to shorten procedure at loading stations.

As traffic is expected to develop further, construction of special road tunnels continues to be debated. Ventilation, and other difficulties associated with tunnels for road vehicles are in favour of extending railway facilities. For example, by making a second single-line tunnel parallel to the double-track bore of the Gotthard Tunnel, a greatly increased service could be given.

## RAILWAY NEWS SECTION

## PERSONAL

Mr. D. D. Bartlett, General Manager, Malayan Railways, is on retirement leave. Mr. G. M. Wheat, Chief Civil Engineer, is acting in his place.

Sir John Elliot, M.Inst.T., Chairman of the London Transport Executive, is retiring shortly. Sir John Elliot was born in 1898, and was educated at Malborough

various railway-associated road transport companies. In 1951, Sir John Elliot was appointed Chairman of the Railway Executive, in succession to Sir Eustace Missenden. When that body ceased to exist, under the terms of the Transport Act of 1953, Sir John Elliot went to the London Transport Executive, as Chairman. Sir John Elliot received his knighthood in the New Year Honours of 1954. In 1951 he became President of the Railway Con-

We regret to record the death, on March 14, of Mr. J. R. Greenwood, Chairman & Managing Director of Craven Bros. (Manchester) Ltd.

Sir George Seel, Senior Crown Agent for Overseas Governments & Administrations, who, as recorded in our March 6 issue, is retiring, was born in 1895. He was educated at King's School, Macclesfield, and at Corpus Christi College, Oxford. During



*Sir John Elliot*

Chairman of London Transport Executive,  
1953-59



*Photo: [ ]*

*Sir George Seel*

Senior Crown Agent for Overseas Governments & Administrations, who is retiring

and the Royal Military College, Sandhurst. He served in the 3rd Hussars in the 1914-18 war, and resigned his commission, in 1920, to take up journalism. He joined the Southern Railway in 1925, and became Development Officer in 1930, Assistant Traffic Manager in 1933, Assistant General Manager in 1937, Deputy General Manager in 1939 and Acting General Manager in 1947. On the nationalisation of the railways on January 1, 1948, Sir John Elliot became Chief Regional Officer of the Southern Region, British Railways. In March, 1949, he visited Australia at the invitation of the Victorian Government to report generally on the Victorian Government Railways, and, in 1950, he was appointed Chief Regional Officer, London Midland Region, in which year he gave evidence, on behalf of the Ulster Transport Authority, concerning the closure of the Belfast & County Down Railway. He was closely associated with the organisation of the railway-operated air services, and has been a director of

valescent Homes. Sir John Elliot was nominated Senior Vice-President of the International Union of Railways in 1951. In the same year he visited the United States, where he met the executive heads of several of the largest American railways and inspected the British Railways organisation in the U.S.A. for development of tourist traffic to Great Britain. He was nominated an Officer of the Legion of Honour, in 1953, in recognition of the part he played in the development of international services between France and Great Britain, and in the promotion of co-operation between their two railway systems. In 1957 he addressed the Annual Convention of the American Transit Association, in Montreal. Sir John Elliot was elected a director of Thos. Cook & Son Ltd., in January of this year and, last month, became a director of the Pullman Car Co. Ltd. He holds the U.S.A. Medal of Freedom with bronze palm for special services to the Transportation Corps, U.S. Army.

the 1914-18 war, he served in Europe with the 7th Battalion, Cheshire Regiment, Territorial Forces. In 1938 he was Secretary, Rhodesia-Nyasaland Royal Commission. He served as Assistant Under-Secretary of State, Colonial Office, from 1946 to 1950, when he became Comptroller for Development & Welfare in the West Indies, and British co-Chairman of Caribbean Commission. In 1953, Sir George Seel was appointed Crown Agent for the Colonies, an appointment redesignated Crown Agent for Overseas Governments & Administrations in 1954.

Mr. J. E. Hampson, Assistant Secretary, Organisation & Methods, Ministry of Transport & Civil Aviation, has been appointed Deputy Secretary. He will take charge of the Inland Transport part of the Ministry, in succession to Mr. L. J. Dunnett who, as recorded in our February 20 issue, has been appointed Permanent Secretary. The appointment takes effect on April 1.





**Mr. H. T. Hutchings**

General Superintendent (Traffic, Railways),  
London Transport Executive, 1948-59



**Mr. Alex J. Webb**

Appointed Assistant Operating Manager (Railways),  
London Transport Executive



**Mr. G. S. Bingham**

Appointed Mechanical Engineer (Works & Contracts)  
London Transport Executive

Mr. H. T. Hutchings, General Superintendent (Traffic, Railways), London Transport Executive, who, as recorded in our February 13 issue, has retired, began his railway career with the Central London Railway in 1909. He left the service, in 1911, but returned, in 1913, to the Underground Group, in the office of the Superintendent of the Line. During the 1914-18 war he served in France with the Railway Operating Division, Royal Engineers. In 1920, he was selected for a special training scheme, studying all aspects of operating work. In 1925, he became Acting Assistant (Indoor) to the Superintendent of the Line, and, five years later, Personal Assistant to the Operating Manager. He was appointed Assistant Divisional Superintendent, in 1933, and, in 1938, when a general re-organisation of the Operating Department took place, became Indoor Superintendent. He was appointed General Superintendent (Traffic) in 1948. Mr. Hutchings visited Sweden, in 1947, to advise on the construction of the Stockholm Underground Railway. Early in the 1939-45 war, Mr. Hutchings was closely concerned with the evacuation of children from London, and, in 1942, he became one of the four members of the newly-formed Post-War Planning Committee. Mr. Hutchings was a member of the Railway Clearing House Rule Book Committee, the Railway Executive Operating Committee, and of the Councils of the London Transport Benevolent Fund and War Comforts Fund. He had been Chairman of the Stations Committee since 1948 and was a management-side member of No. 1 Sectional Council. Mr. Hutchings is Vice-President of the London Electric Railway Athletic Association and Chairman of the L.E.R. Golf Section. He was one of the earliest students of the Institute of Transport and was, until recently, a full Member of the Institute.

Mr. F. L. Wills, Managing Director of Hunting Aerosurveys Limited, Hunting Geophysics Limited, and Aerofilms Limited, has retired after 39 years connected with air survey. He will remain on the board of Hunting Aerosurveys Limited. Mr. T. D. Weatherhead, General Manager, succeeds Mr. Wills.

Mr. Alex. J. Webb, M.Inst.T., General Superintendent (Staff & Training, Railways), London Transport Executive, who, as recorded in our February 13 issue, has been appointed Assistant Operating Manager (Railways), is 61. He joined the London Electric Railway in 1914, but almost immediately afterwards enlisted. He was commissioned in the Essex Regiment and served in France. In 1917 he was seconded to the Admiralty, until, in 1919, he returned to the railway as a cadet in the Operating Department. He received practical training in the various sections of the Operating Department, and, in 1923, was appointed Assistant to the Superintendent of Rolling Stock. In 1925 he took charge of the Training School at Lambeth North, and, in 1927, became Divisional Traffic Superintendent. Mr. Webb was attached to the Southern Railway, for three months, in 1929. He was made an Officer of the London Passenger Transport Board, as Assistant Divisional Superintendent (Railways), in 1936, and, in 1938, he was promoted to be Superintendent (Outdoor). In 1948, he became General Superintendent (Staff & Training). During the 1939-45 war, Mr. Webb was a Deputy Member of the Operating Committee, Railway Executive Committee. He now serves on a number of staff councils and similar committees and is a member of the London Transport Benevolent Fund Council, the Management Committee of the London Transport Administrative & Supervisory Superannuation Fund, and the Committee of the St. John Ambulance Association. Mr. Webb was for some years Chairman of the Albert Stanley Railwaymen's Institute and is now a Vice-President of that Institute. He is Chairman of the London Transport St. John Ambulance Association Centre and President of London Transport (No. 89) Corps, St. John Ambulance Brigade. He holds office in a number of London Transport sports and social clubs. He is a Member of the Council of the Institute of Transport and a former Chairman of the Metropolitan Section of the Institute. He is also a Member of the Locomotive & Carriage Institution. Mr. Webb has been a Commander (Brother) in the Order of St. John of Jerusalem since May, 1950.

Mr. G. S. Bingham, M.I.Mech.E., M.I.Loco.E., M.Inst.T., Mechanical Engineer (Works, Railways), London Transport Executive, who, as recorded in our February 13 issue, has been appointed Mechanical Engineer (Works & Contracts) in the Department of the Chief Mechanical Engineer (Railways), is 52. Mr. Bingham was educated at the Polytechnic, Regent Street. He joined the Chief Mechanical Engineer's Department, London Electric Railway, in 1922, as an apprentice and was appointed Depot Engineer, Ealing Common Depot, in 1946. In 1947, he was appointed Divisional Depot Engineer, and, in 1950, was made Assistant Mechanical Engineer (Running) and, at the same time, appointed an Officer of London Transport Executive. Under a change in organisation made in the Department of the Chief Mechanical Engineer (Railways), in 1955, to widen the experience of Officers of the Department, he became Assistant Mechanical Engineer (Works). His title was amended last year to that of Mechanical Engineer (Works, Railways). Mr. Bingham is now responsible for the control of contracts, estimating, programming, material control and plant.

Mr. R. W. Jackson, District Commercial Manager, Edinburgh, Scottish Region, British Railways, has been appointed District Goods Manager, Glasgow.

#### L. M. REGION APPOINTMENTS

London Midland Region, British Railways, announces the following appointments:—

Mr. J. Cornwell as Assistant District Goods Manager (Sales), Bolton.

Mr. R. E. Hardy as Stationmaster, Birmingham, New Street.

Mr. W. E. Preston as Assistant to District Operating Superintendent, Manchester North.

Mr. N. Cain as Assistant to District Operating Superintendent, Manchester North.

Mr. H. Simpson as Yardmaster, Crewe, Basford Hall.

Mr. M. C. Purbrick as Assistant District Engineer, Manchester.

Mr. N. Liddle as Stationmaster, Bolton.





**Mr. M. R. Bonavia**

Appointed Director of Studies, British Transport Staff College, Woking

Mr. M. R. Bonavia, Principal Officer (Modernisation), General Manager's Office, Eastern Region, British Railways, who, as recorded in our February 13 issue, has been appointed Director of Studies at the British Transport Staff College, Woking, served, after leaving Cambridge, in the Information Department of N. M. Rothschild & Sons Limited, and as Financial Officer of the University of London. He joined the railway, in 1945, as Public Liaison Assistant to the Chief General Manager of the L.N.E.R., later becoming Post-War Development Liaison Officer. On nationalisation he was appointed to the staff of the Commission, as Assistant Secretary (Development & Works), being re-designated later as Principal Works & Development Officer. In 1953 he was transferred to Railway Executive Headquarters as Chief Officer (New Works), and, in 1956, became Principal Officer (Modernisation) in the General Manager's Office, Eastern Region. In 1951 Mr. Bonavia was seconded to the Gold Coast Government, for three months, to study the economics of transport in the Gold Coast in relation to the country's economic development. He is the author of "The Economics of Transport," a standard textbook for students since 1935. In recent years he has been an examiner in transport economics in the University of London.

Mr. G. L. Dray has been appointed Manager, Oil Division, Consolidated Pneumatic Tool Co. Ltd.

Mr. H. S. "Dick" Broom, Mr. Broom Smith and Mr. J. E. Bamfrough have been appointed directors of Broomwade-Belge S.A., a merchandising company recently formed by Broom & Wade Limited.

**MALAYAN RAILWAY STAFF CHANGES**  
The following staff changes have recently taken place on the Malayan Railway:—  
Mr. Ng Teong Sew, Financial Officer, has retired.

Mr. P. B. Brokenshire, Assistant Chief Accountant, has been appointed Chief Accountant.

Mr. Leong Kee Yap and Mr. D. G. Riley have been appointed Assistant Chief Civil Engineers.

Mr. C. B. Clapham, Assistant to the Chief Mechanical Engineer (Road Services), London Transport Executive, is retiring this month.

Mr. A. L. Lanckton has been appointed a Director of Mobil Oil Co. Ltd., in place of Mr. J. C. Dean, who has resigned.

Mr. R. F. Hunt, a Director of the Dowty Group, has been appointed Deputy Chairman.

Mr. Mark H. Taylor has rejoined the board of British Engineers Small Tools & Equipment Co. Ltd. Lieut.-Colonel T. Child has relinquished his position as Director & Chief Executive. Mr. Arthur Child, the present Secretary, is also Acting Manager of the company.

We regret to record the death, on March 10, of Mr. S. Eldridge, Assistant District Refreshment Room Manager, Paddington, Western Region, British Railways. Mr. Eldridge retired, last October, after 32 years' service. Mr. Eldridge was steward at the Transportation Club from the time it opened, in 1942, until he returned to the railway about six years later.

Mr. V. R. Bowen-Cooke, Assistant Road Motor Engineer, London Midland Region, British Railways, has retired. Mr. Cooke joined the railway at Crewe in 1916 and, since 1920, has been in the Road Motor Department. He became Assistant Road Motor Engineer in 1946. He is the son of the late C. J. Bowen-Cooke, who was Chief Mechanical Engineer of the former London & North Western Railway.

We regret to record the death, on March 10, at the age of 58, of Mr. R. Byron-Scott, Principal Pensions Officer, British Transport Commission. Mr. Byron-Scott was educated at Brighton College and joined the Superintendent of the Line's Department, Great Northern Railway, in 1920. In 1939 he transferred to the office of the Chief General Manager, L.N.E.R. In 1943 he became Head of the Managing & Salaried Staff Section, Kings Cross. In December, 1947, he moved to the Staff & Establishment Division, B.T.C., as Senior Secretarial Assistant. He became Staff Officer in 1949 and, in 1954, assumed additional duties as Secretary, Pensions Scheme (Adult Male Wages Grades). In July, 1956, Mr. Byron-Scott was appointed Staff Officer (Pensions & Compensations) in the Manpower Adviser's Department, and, in May, 1957, he became Principal Pensions Officer, the appointment he held at the time of his death.

#### THE LATE MR. W. CYRIL WILLIAMS

The funeral of the late Mr. W. Cyril Williams, Director, Beyer Peacock & Co. Ltd., took place at Putney Vale Crematorium, London, on March 12. In addition to family mourners, the following were among those who attended:—

Messrs. L. T. Dawes, J. Hadfield, M. A. Crane (representing Mr. H. Wilmot), S. Tonge, C. R. H. Simpson, G. R. Curry, R. Arbutnot, G. T. Hart, A. Campbell, D. C. Brown, J. Vidal, J. Johnson, E. Lawton, F. Theakston, L. B. Alexander, E. K. Marshall, (representing Mr. O. Naylor), Major John Burman, Messrs. B. W. C. Cooke, J. Clubley Armstrong, F. Mason, F. O. Ellis, H. Gresham, G. Watts, J. Cave, K. Pearson, C. G. Hatherley, V. Marshall, D. C. Dyball, W. Dunbar, H. Clarke, A. S. Davidson, S. G. Hammond-Seaman, G. Hammond-Seaman, V. R. Marshall.



**The late Mr. Alexander Mackintosh**

Traffic Manager, Buenos Ayres Great Southern Railway, 1924-33

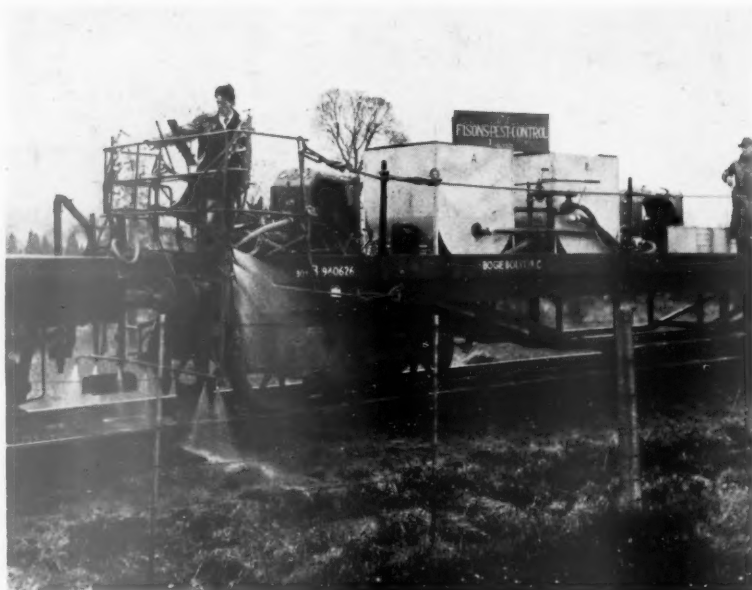
We regret to record the death on March 8, at the age of 85, of Mr. Alexander Mackintosh, Traffic Manager, Buenos Ayres Great Southern Railway, from 1924 to 1933. Mr. Mackintosh started his railway career on the former Highland Railway, on which he spent seven years. In 1896 he entered the service of the B.A.G.S.R. as a clerk in the Traffic Department. He spent six years in Buenos Aires and various outside districts, including Bahia Blanca. In 1902 he was appointed Assistant Traffic Inspector, Plaza Constitución Terminus, Buenos Aires, becoming Traffic Inspector, Neuquen, in the following year. In 1908 he was appointed Chief of Tariffs, with headquarters at Buenos Aires, occupying this position until 1918, when he was promoted to be Chief Clerk of the Traffic Department. This was followed by a further period of outside duty, and, in 1924, he was appointed Traffic Manager, a position he held until his retirement in July, 1933.

Mr. J. F. W. Bowskill has been appointed Resident Technical Representative of D. Napier & Son Ltd., for South, Central and East Africa. He succeeds Mr. P. S. Deary, who has been the company's representative for the past four years.

Mr. W. I. Pumphrey, Manager of the Research Department of Murex Welding Processes Limited, has been elected to the Court of Governors of the University of Birmingham as a representative of the Guild of Graduates.

Mr. W. I. Fletcher has been appointed a director of Dorman, Long & Co. Ltd. and of Dorman Long (Steel) Limited. Mr. Fletcher has been a special director of both companies, since 1956, and is Managing Director of Tees Side Bridge & Engineering Works Limited. Mr. E. N. Highton and Mr. George Foster have been appointed Special Directors of Dorman, Long & Co., Ltd., and Dorman Long (Steel) Limited. Mr. Highton is General Sales Manager, Dorman Long (Steel) Limited, and Mr. Foster supervises the rolling mills.

## NEW EQUIPMENT AND PROCESSES



### Modernised Weed Control

**A** NEW application technique for weed control incorporating a machine specifically designed for use on British Railways has been developed. The machine is expected to produce optimum results with Weedex, the weedkiller described in this section on February 20.

The sprayer applies a known basic dosage rate, at a known speed, evenly to track, shoulder, and cess. Spray output is variable with speed, thus keeping dosage rate constant.

Differential dosage matches the weed pattern by increasing application rate in the cess and bottom of shoulder, by a known amount, with a corresponding reduction on the track and the 6-ft., the overall dosage rate remaining standard.

Spray swath is adjustable for cesses of varying width and depth, without the disadvantages of a retractable outrigger spray-bar. (This point is of particular importance in relation to the rapid extension

of overhead electrification and wider cesses.)

Tankage is designed to facilitate homogeneous mixing and suspension of an almost insoluble weedkiller.

The machine is trouble-free, simple to operate, and inexpensive to build.

The reproductions on this page illustrate the new machine, which has been designed and built by the Applications Department at the Chesterford Park Research Station of Fisons Pest Control Limited. It will be used for trial and commercial spraying this year.

The basic design can be scaled up for use on spray trains or scaled down to replace hand-operated trolley sprayers. It can spray at 20 m.p.h. with an instantly-variable swath width of six to eighteen feet. The weedkiller is fixed and kept in even suspension by use of the batch system with twin tanks.

Spraying is carried out from one tank while the other fills with water and chemical. Separate motorised pumps feed the spray liquid to the spray-bars and trans-

fer water from a rail tanker. Hydraulic turbulence during filling ensures a homogeneous suspension of chemical and is maintained in both tanks by a re-cycling during enforced waits. Three levers control this part of the process.

The most advanced features of the machine are the spray gear and control panel. An orthodox spray-bar giving spray cover over the track is supplemented by turrets of long-throw nozzles, each independently controlled to give coverage of shoulders and cesses, two to seven feet wide. By adjustment of height and elevation, the spray cover can be matched to various depths and positions of cesses in relation to the track.

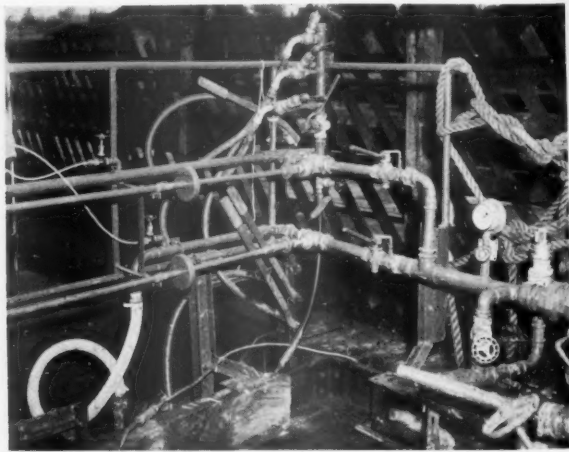
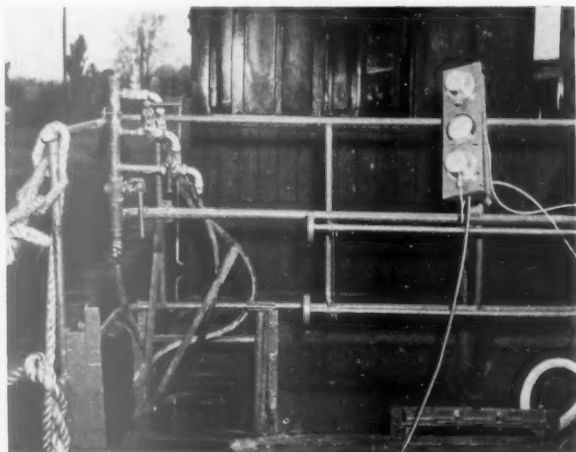
The control panel is centrally mounted and hinged for easy reading from both left- and right-hand control positions. It consists of a speed indicator and two pressure gauges. One is connected to the track spray-bar, the other to the cess turrets. All are calibrated to a common scale so that output is easily adjustable to changes in speed. Differential dosage is achieved by operating the two sets of spray gear at a pre-determined differential from the speed indicator.

Research has established that the minimum amount of water required to place the chemical can safely be reduced from the hitherto customary 160 gal. per acre to 80 gal. per acre, without increase in drift hazard or reduction in efficiency of coverage.

The equipment effectively doubles the capacity of railway spraying equipment and thus considerably increases the proportion of spraying to non-spraying time. This, and the economic weight per acre of Weedex, makes for a considerable saving in application and equipment costs.

This prototype has been built solely to demonstrate an improved application technique to match the higher standard of application demanded by a more powerful and persistent weedkiller if the utmost value is to be gained from recent advances in modern biological science.

While research continues, sufficient technical evidence already has been obtained to show that a treatment programme can be worked out to give a higher standard of weed control across the full section of the track, including cesses, from one application per year, at a cost much less than that expended using a combination of soluble weedkiller and "gardening."





### High Sensitivity Detector

THE Graviner High Sensitivity Detector senses and locates abnormal temperature rise on any main bearing and main working surface within the crankshaft. It is suitable for installation on all types of diesel, petrol, and dual-fuel engines up to 500 h.p. per cylinder, either supercharged or normally aspirated, direct or controlled, to a maximum output of 3,000 h.p.

The unit measures the density of oil mist drawn continuously through two separate identical tubes. Projected down the axis of both, a beam of light energises two photo-electric cells, the electric output from each of which is proportional to the density of the incoming light. As output is opposed electrically, no current flows when the oil mist contained in the tubes is of equal density. When a difference occurs, the resulting unequal obscuration of light causes an electrical unbalance. A relay is operated which sounds an audible and visible warning when the differential EMF reaches optimum value.

The apparatus is simple to install and connected to the engine by flexible sampling pipes fitted with quick release couplings to corresponding connections mounted in the inspection door of each crank chamber.

Two models are available: standard a.c., suitable for connection direct to 230-250 a.c. 50-cycle mains supply, and a d.c. model for 220 d.c. mains via a separate external voltage-dropping resistance unit. Equipment for alternative electrical supplies can be made available, when required.

Further details can be obtained from the Graviner Manufacturing Co. Ltd., 29, St. James' Street, London, S.W.1.

### Anti-Vibration Mounting

THE Cushyfoot "S" mounting has been designed for the lightweight four-cycle high-speed diesel engine now coming into general use on locomotives. A compact unit taking up little room in relation to its capacity, the mounting is  $4\frac{1}{2}$  in. high when under load. Vertical deflection under a load of 2,500 lb. is 0.25 in., which provides sufficient flexibility to isolate vibration from the type of engine for which it has been designed. Shunting shock loads up to 5g can be accommodated.

An adjustable buffer is incorporated which keeps engine movement in all directions within desirable limits. No separate devices such as control links or snubbers are required and, as buffer adjustment is at the top of the mounting, setting can be carried out within the engine compartment. On diesel-hydraulic locomotives torque-reaction forces have to be considered in designing engine mountings. The vertical stiffness of the mounting is such that the buffer does not come into operation under these forces.

The new mounting is particularly suitable for diesel-electric and diesel-hydraulic locomotives. For the former, a six-point mounting system is sometimes needed, because of the additional weight of the generator, but for the diesel-hydraulic a four-point mounting arrangement is used. Different deflections are given in trans-

verse and fore-and-aft directions. The reason for this is clear from the accompanying illustration showing main components. Under transverse loads the circular, rubber-bonded-to-metal springs are in shear, while in a longitudinal direction they are in compression. In a vertical direction they are in shear and compression, giving both high-load capacity and large deflections.

The ratios of transverse, vertical, and longitudinal stiffnesses are in the order of 1:3:17. The mounting is fitted so that it is stiffest in a direction parallel with the crankshaft centreline. Maximum flexibility is available transversely to cope with engine vibration in this direction.

These mountings are being fitted to a number of the 2,200 b.h.p. BB diesel-hydraulic locomotives with Maybach engines and Mekydro transmission being built at Swindon, and to the North British 1,100 b.h.p. BB locomotives with M.A.N. engines and Voith transmission, also for British Railways, Western Region.

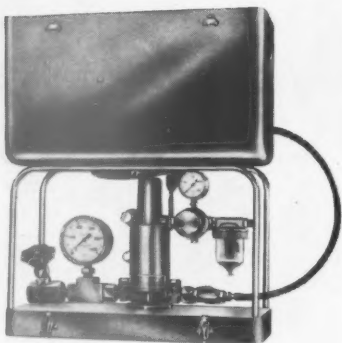
Further details can be obtained from the manufacturer, Metalastik Limited, Evington Valley Road, Leicester.

### Monel Castings

NON-FERROUS castings may now be obtained in Monel, for which alloy the following advantages are claimed:—







Great strength at high temperatures, high hardness, toughness, and ductability; good wear and abrasion resistance; stability in service; retention of strength at elevated temperatures and during prolonged exposure to high super-heated steam; relative insensibility to temperature variations; resistance to corrosion during cold working, welding, or heat treatment. Monel is unaffected by most organic and inorganic acids, alkalis, and salts.

Typical uses are: steam valves, seats and spindles in temperatures up to 450 deg. C., pump rods and impellers, drain cocks, corrugated joint rings, gland packing springs, and on water gauge glass fittings.

The illustration on page 341 shows castings made from Monel. Further details can be obtained from Charles Carr Limited, Grove Lane, Smethwick 40, Birmingham.

### Portable Hydraulic Test Set

**THE** Madan portable hydraulic test set, designed to meet mobile testing requirements, is self-contained and needs only to be connected to a compressed air line or to nitrogen or compressed air bottles.

The pump works on the principle that air pressure applied to a large piston imparts a thrust to a hydraulic ram of smaller area, creating a high hydraulic pressure. This reciprocating action gives a continuous flow.

The set operates from an air supply of not more than 100 lb. per sq. in. An air-pressure regulator control valve enables all intermediate hydraulic pressures within the range to be accurately determined and makes it safe to leave the item under test. On reaching required pressure, the pump becomes dormant on a closed circuit. Should intermittent leakage occur from component or circuit under test, the pump will move automatically until loss is made up.

The set is fitted in a moulded glass-fibre case which, when inverted, becomes a 5-gal. reservoir. The pump is available in six models covering pressures from 50 to 10,000 lb. per sq. in. Other included equipment comprises air-pressure regulator, air filter, hydraulic filter, air and hydraulic gauges, hydraulic stop-valve, reservoir, and six assorted adapters for various B.S.P. connections. Case and base mounting are strong, light, and non-corrodible. The tubular protecting frame has a plastic covering. Pump and control valves are of non-ferrous metal or stainless steel, and all air and hydraulic packings are of fabric-reinforced synthetic rubber unaffected by water, kerosene, and

the majority of hydraulic fluids in regular use.

Overall size is 21 in. x 16 in. x 8½ in. Weight is 38 lb. Delivery is generally ex-stock and in no case will exceed two to three weeks.

Further details can be obtained from the manufacturer, Charles S. Madan & Co. Ltd., Vortex Works, Broadheath, Altricham.

### Steam Cleaner

**THE** Det-On Steam Cleaner is an independent mobile unit connected by flexible coupling to a power point and water supply. Within three minutes of switching on, the unit is in full working operation producing a jet of steam mixed with boiling water. To this can be added a pre-determined proportion of detergent solution.

Every type of detergent is acceptable and will vary with the nature of the work.

Detergent solution is injected into the steam circuit after it has passed the heating coil which accordingly is fully protected from damage, through contact with a detergent.

Any water supply is suitable. One hundred and ten Imperial gal. of water can be transformed into steam at a pressure varying from 85 to 180 lb. per sq. in. according to pressure of supply. Alternatively, 220 Imp. gal. of hot water can be produced for immediate use.

The unit is heated by a fully-automatic jet oil burner. A single-phase 1 h.p. motor drives, by direct coupling, water pump, burner pump and burner fan. Measurements are 2 ft. x 3 ft. 4 in. x 3 ft. 7 in.

The cleaner is claimed to be suitable for use in all transport work, for plant maintenance and quick cleaning before repairs. It permits regular maintenance of factories and cleaning of machinery, heavily-soiled floors, glazing and walls, removes paint and sterilises vessels. It can clean drums, tanks, and oil reservoirs, evacuate dangerous gases, and is suitable for any

application where instant production of hot water is required.

The cleaner will be in production very soon. At present, U.K. distributors are being sought. Further details, including price, can be obtained from Det-On Division, Wanson Co. Ltd., 7, Elstree Way, Borehamwood, Herts.

### All-Purpose Tape

**A** NEW all-purpose adhesive tape is available which is rot-proof, weather-proof, waterproof, self-adhering, and corrosion-resistant. It is unaffected by moisture of frost and protects pipes above or below ground from corrosion. It also protects bridge steelwork beneath timber decking, conduit insulating materials, service pipe and cable muff entries.

It can be used for a variety of protective, weatherproofing, and sealing work. Always remaining sticky to the touch, the tape does not deteriorate in fresh or salt water. It is effective down to a temperature of minus 30 deg. C. Above a temperature of 40 deg. C the tape will tend to soften and drip. It is adversely affected by oil and bitumen.

The tape is supplied in 30-ft. lengths in four widths as follows:—

1-in., 15s. per doz. rolls; 2-in., 30s. per doz. rolls; 3-in., 45s. per doz. rolls; 4-in., 60s. per doz. rolls.

Further details can be obtained from the manufacturer, Caulking Services Limited, 36, Great Queen Street, London, W.C.2.

**HEAVY BOOKINGS FOR LONDON MIDLAND REGION CRUISES.**—Over 200 bookings have been received for each of the British Railways, London Midland Region, *Duke of Lancaster* six- and nine-day cruises to the Dutch and Belgian Coasts and to the Scottish Lochs. Normally the ship carries 1,800 passengers, but accommodation for the cruise has been limited to 340.



## Retirement of Sir John Elliot from L.T.E. Chairmanship

*Exchange of correspondence with Sir Brian Robertson*

As recorded in our personal columns, Sir John Elliot is retiring from the Chairmanship of London Transport Executive. The following letters have been exchanged between Sir John Elliot and Sir Brian Robertson, Chairman of the British Transport Commission.

*Sir John Elliot to Sir Brian Robertson*

March 3, 1959.

MY DEAR BRIAN,

Now that my release from the Chairmanship of London Transport has been agreed, I want to thank you for your ready understanding of my request, having in mind our talk in 1957, when I told you of my probable intentions regarding retirement.

The business of London's passenger traffic, in which I have spent nearly 35 years, the bulk of it with the Southern Railway and London Transport, has been an absorbing task, and I shall continue to watch it with the greatest interest. Though the problems grow more acute every year (particularly, giving the public the service they demand at a price they are prepared to pay), I have no doubts about the capabilities of those I shall leave behind in London Transport to find the answers, under their new Chairman. Indeed, they must do so, for London Transport will continue for the foreseeable future to be an essential part of Greater London's life, as it has been for so many years past.

I look forward to my re-association with Thomas Cook & Son and the Pullman Car Company, with both of which I have worked for many years, and I shall hope to be of some help to you and the Commission in this way.

May I say that it has been an inspiration to have had such a close association with

you through six difficult but interesting years, and I am most grateful to you for your unflinching confidence and friendship, at a time when you have had so much on your hands in the wider field of transport as a whole. In this I am sure you will win through to full success, and soon.

Yours ever,  
JOHN

Sir Brian Robertson, Bt. G.C.B.,  
Chairman,  
British Transport Commission,  
22, Marylebone Road,  
London, N.W.

*Sir Brian Robertson to Sir John Elliot.*

MY DEAR JOHN,

Thank you for your letter of March 3. The formal relationship between London Transport and the British Transport Commission could admit the possibility of friction between the two organisations. I am very grateful to you for the fact that during these nearly six years in which you have been Chairman of the Executive, there has been complete harmony between us.

London Transport has a very difficult task and, so far as I can see, one that is likely to become more difficult still. Your successor can be thankful, as I am, for the capable manner in which you have managed the business during your own time in office, as well as for the way in which, within the limits of possibility, you have prepared for the future.

I shall miss you very much at 55, Broadway, but I am happy to think that our association will continue in another field.

Yours ever,

BRIAN H. ROBERTSON

Sir John Elliot

## Bridge Reconstruction at Bethnal Green

Work has commenced on the replacement of Bridge No. 22, an underline bridge on the London side of Bethnal Green Station, Great Eastern Line, British Railways, Eastern Region. It consists of six separate girder spans on brick abutments.

Severe corrosion and over stressing has made it necessary for the bridge to be renewed. Life-expired junctions on and near the bridge are also being renewed, and tracks repositioned to improve alignments in anticipation of the higher speeds of electric trains as they come off the Bishops Stortford line.

Because of the presence of overhead wires for the Liverpool Street-Chelmsford-Southend electric service, the normal method of lifting in the pre-fabricated span by steam cranes could not be used.

The second span in from the west carrying the up suburban line was removed first. The new 40-ton span was pre-fabricated at the Millwall premises of Westwood & Co. Ltd. It was brought by road to Spitalfields Yard, and transferred to a bogie bolster wagon. Two similar wagons had each been equipped with squat steel towers spanned by slewing jibs. The three wagons were brought to the site and shunted so that the bridge was on the track leading to the open span with the other two on either side.

### Bridge Lifting

The jibs were swung out from both wagons across the centre track and made fast forming two spans from wagon to wagon over the pre-fabricated bridge. The bridge was then lifted clear of its wagon by tackle on the spans and the wagon drawn out from beneath. The two wagons with the bridge suspended between them were moved forward until the bridge was in position over the open span. The wagons were halted and the bridge lowered on to its abutments.

### Rolling-in Operation

This method can only be used for the four interior tracks. After removing the old span, the up suburban span had to be transferred to the down suburban position by rolling in on phosphor-bronze ball bearings. This was carried out on the night of March 7-8. On March 14-15, the up suburban span was again replaced.

Bridge No. 21 across Vallance Road will be dealt with in the same way, but the work will be easier because of the absence of the junctions which complicated the operations on bridge No. 22.

The contractor for the spans is Joseph Westwood & Co. Ltd. Erection is being performed jointly by contractor and railway labour. The permanent way work is being carried out entirely by railway labour. The designs were prepared and the work carried out under the general direction of Mr. A. K. Terris, Chief Civil Engineer, Eastern Region.

## Derby-built 2,300-h.p. Diesel Electric Locomotive



Nearing completion at Derby Works, British Railways, London Midland Region, a 2,300 h.p. locomotive with Sulzer double-crankshaft 12LDA28 diesel engine and Crompton Parkinson electrical equipment. This is the first of 10 locomotives intended for express passenger service in the L.M.R., Western Division

**RAIL ROVER TICKETS IN THE WESTERN REGION.**—Unlimited rail travel in the Region for seven consecutive days is offered by British Railways, Western Region. Rail Rover tickets now on sale. The second class fare is £9, half-price for children. Reductions to £8, and £4 for children, are made to families when one and a half or more tickets are bought for the same period. First class tickets are available at 50 per cent above the second class rate.

## Internal Communication at Kings Cross

*Flying spot technique used for simultaneous relay of train information from signal box to four widely-spaced points*

The Deccafax system of internal communication, manufactured by Decca Radar Limited, is on trial at Kings Cross, Eastern Region, British Railways. The system passes train information from one central position to various points which relay the information to the public. An illustrated description of the equipment was given on page 284 of our September 6, 1957 issue.

This trial by the Great Northern Line is part of a continuous study of means of improving the service of information to passengers. Arranged in conjunction with the manufacturer of the new equipment, it will last two months.

Hitherto, information received in the signal box at Kings Cross from Peterborough, Hitchin, and Hatfield, has been passed by telephone to the Station Announcer and the Train Arrival Indicator room. The new system communicates with all receiving points visually and simultaneously.

The equipment under trial consists of a transmitter in the signal box and receivers in the Station Announcers' Office, at the Train Arrival Indicator, in the Enquiry Office, and in the Yard Inspector's Office. The transmitter employs the flying spot scanning technique. Messages for transmission are written on cellophane transparencies and placed on the screen. They are reproduced at the receiving points on standard television receiving equipment of suitable size. To avoid the need for continuous watch on the receivers, a bell rings when a new message is sent.

At present, messages transmitted at Kings Cross are in stereotyped form. Transparencies are pre-printed, and details filled in by hand. The system may later be adapted for messages of all kinds.

The solution of technical difficulties such as size of screen and the effect of daylight on legibility may make the system

or one similar a useful adjunct to loud-speaker announcements. A transmitter could be placed in the Station Announcer's Office, for example, and receivers could be situated at platform barriers and in waiting rooms and buffets. Train and other information could thus be transmitted all over the station without loss of time.

## French Summer Passenger Services

In the French National Railways summer passenger timetable, which comes into force on May 31, advantage is taken of electric traction on the Paris-Lille line of the Northern Region. Three expresses each way, first class only, at 7.30 a.m., 6.15, and 9.12 p.m. from Paris and 7.7 a.m., 4.45, and 6 p.m. from Lille, will cover the 155.9 miles in each direction in 2 hr. 10 min. (72 m.p.h.) including stops at Arras and Douai. The 119.4 miles between Paris and Arras will be run northbound in 93 min. (77 m.p.h.) and southbound in 94 min. (76.2 m.p.h.). Many other trains are to be accelerated.

In the South-Western Region, between Paris Austerlitz, Bordeaux, Bayonne and Hendaye, the "Sud Express" will cover the 359.8 miles between Paris and Bordeaux non-stop in the unprecedented times of 4 hr. 48 min. southbound and 4 hr. 54 min. northbound (75 and 73.4 m.p.h. respectively), and the times of 7 hr. 8 min. to and 7 hr. 10 min. from Hendaye, 504.4 miles, will be 10 and 15 min. faster than now. "Le Drapeau," the extra-fare 8.5 a.m. train from Bordeaux to Paris and the return train at 6.30 p.m. will perform the run in 5 hr. 10 min. each way, with intermediate stops at Angoulême, Poitiers and St. Pierre-des-Corps.

On the main line of the South Eastern Region there is to be a second express only slightly slower than the "Mistral." This train, first class only with supplement, will start from Lyons at 8.5 a.m. and stopping only at Dijon will cover the 317.4 miles to Paris in 4 hr. 10 min., 7 min. more than by the "Mistral." Southbound, the departure from Paris will be at 7.25 p.m., and 4 hr. 5 min. will be allowed to Lyons.

These trains are intended for businessmen. They will not run on Saturdays and Sundays and will be suspended during the height of the holiday season, between July 4 and September 14.

Besides their present connections, they will connect at Dijon to and from Berne and will also carry a through portion to and from Aix-les-Bains and Chambéry. The "Mistral" will be booked to cover the 195.3 miles from Paris to Dijon in 145 min. This start-to-stop average of 80.8 m.p.h. will be the fastest in Europe.

The T.E.E. diesel train "North Star" is to be duplicated between Paris and Brussels, at 4.11 p.m. southbound and 5.38 p.m. northbound, increasing to four each way daily the T.E.E. services between the two capitals.

## Staff and Labour Matters

### N.U.R. Wage Claim

The National Union of Railwaymen decided on March 12 to submit a claim to the British Transport Commission for a substantial increase in pay for its members. The decision was taken by the union's Executive Committee after considering resolutions from branches and district councils.

It is understood the claim will cover all members of the N.U.R. employed by the British Transport Commission. It will thus not be confined to staff on British Railways, but will include those employed by London Transport, docks, and catering services.

The other two railway unions, the T.S.S.A., and A.S.L.E. & F., have been in-



(Left) message being transmitted in signal box, and (right) train arrival indicator attendant taking details of main-line train running from display on receiver screen



formed by the N.U.R. of its proposed claim.

The last increase in pay for British Railways staff operated from June 30, 1958, when following protracted negotiations, which culminated in an approach to the Government, an increase of 3 per cent was granted. It was also agreed that there should be a review of railway pay by an independent committee which would make a comparison of the pay of railway salaried and conciliation staff with the pay of staff employed in other nationalised industries, public services, and appropriate private undertakings. This committee, under the chairmanship of Mr. C. W. Guillebaud, has recently commenced its investigations, but it is expected that some months will elapse before inquiries are completed and the committee's report published.

The N.U.R. has stated that the new pay claim does not conflict with the pay review. Its object is to meet the present situation, particularly in view of reduced earnings as a result of falling traffic and the economy measures which have been introduced. The union would still co-operate in the pay review, but the increase now sought would give the union's membership something on account.

The union has been under strong pressure from the branches and districts councils to lodge a pay claim immediately, and the London District Council passed a resolution demanding a rise of 20 per cent.

## Questions in Parliament

### Disposal of Railway Land

Mr. Graham Page (Crosby—C.) asked the Minister of Transport & Civil Aviation on March 11 in view of the British Transport Commission inquiry into the possibility of the sale of such of its land as was not at present used for purposes of its undertaking, what further consideration he had given to proposals for the disposal of the whole of the Commission's railway undertaking, other than the permanent way itself, thus assimilating rail transport with trunk road transport.

Mr. G. R. H. Nugent, Joint Parliamentary Secretary: It has always been the Commission policy to dispose of land not likely to be required for its undertaking and it has therefore made no special enquiry. No proposals on the other point raised have been put to us.

Mr. Page: If rail transport were relieved of the upkeep of the permanent way, in the same way as road transport is relieved of the upkeep of the roads, it could be run as an efficient service under public enterprise.

Mr. Nugent: I do not think that shifting the cost of maintaining the permanent way would be a solution. There are bound to be complaints until the modernisation process has been completed, but the upward trend of passenger traffics over recent months seems to give some indications contrary to what my hon. Friend suggests.

### Railway Premises (Gowers Report)

Dr. Barnett Stross (Stoke-on-Trent C.—Lab.) asked the Minister of Labour on March 6 how many railway premises would require inspection to implement the Gowers Report, Cmd. 7664; what estimate had been made of the additional staff that would be required for such work of inspection; and what preliminary study

had been made of the problems that would be involved.

Mr. Iain Macleod, in a written answer: I cannot give an accurate estimate of the number of railway premises covered by the recommendations of the Gowers Committee as the recommendations were in general terms and allowed for exemptions. I have made no estimate of the staff needed if statutory effect were given to the report. As regards the last part of the question, a pilot study of the problems that would be involved was made in 1954 as regards the railway premises and employments centred on York.

## Parliamentary Notes

### L.T.E. Chairmanship

Mr. Ernest Davies (Enfield E.—Lab.) has given notice that he will ask the Minister of Transport & Civil Aviation on March 25 whether he will now state whom he proposes to appoint as Chairman of the London Transport Executive in succession to Sir John Elliot; and which members of the Executive have had experience in the organisation of workers in accordance with Schedule 2 relating to provisions as to executives, of the Transport Act, 1947.

### Railway Workshop Closure

In view of the proposal by the B.T.C. to close the mechanical and electrical engineering departments of the railway workshops at Inverness, which may result in redundancy of local labour, Mr. Neil McLean, M.P. for Inverness-shire, arranged for Provost Wotherpoon of Inverness and Councillor John F. Macaulay, Secretary of the local branch of the N.U.R., and Mr. Ewan J. Fraser, its President, to be received as a deputation by Lord Forbes, Minister of State for Scotland.

Mr. McLean stated, after the discussion, that the Minister of State was informed by the deputation that the closure of the workshops would have an adverse effect on the economy of the Highlands, and he hoped the B.T.C., the Secretary of State for Scotland, and the Minister of Transport & Civil Aviation would see whether the Inverness workshops could be adapted to the needs of the Highlands after diesel traction had been introduced.

Sir Brian Robertson, Chairman of the B.T.C., informed Mr. McLean that the closure of the workshops was inevitable, and that the manner which the redundancy was dealt with a matter for the General Manager of the Scottish Region, Mr. James Ness.

Sir Brian Robertson added in his letter to Mr. McLean: "The Commission will be making, in due course, a statement on the policy we shall follow in relation to all British Railways' workshops in every part of Britain. I could not anticipate this statement, but I can assure you that the position of these particular workshops in Inverness has been looked into quite impartially and in relation to the actual amount of work available. They will be by no means the only workshops affected by rationalisation."

### Metropolitan Line Services

Mr. F. P. Crowder (Ruislip-Northwood —C.) raised on the adjournment in the House of Commons on March 12 "the disgraceful conditions persisting for a very long time" on the Metropolitan Line. He said that originally the line provided a clean, well-run service, and that the stations had been well maintained and trains punctual. The service today was a disgrace to L.T.E.

The main grounds of his complaint were a decreasing safety margin; unpunctuality; poor lighting and ventilation of coaches; lack of cleanliness; overcrowding; and an uncivil attitude on the part of almost every member of the staff.

Mr. G. R. H. Nugent, Joint Parliamentary Secretary to the Ministry of Transport & Civil Aviation, said that he felt that while there were obvious grounds for complaint, some of the strictures were not altogether fair in the context of the total service which L.T.E. had to give.

"This is a suitable opportunity," continued Mr. Nugent, "to put it on record that, in my opinion, Sir John Elliot [as Chairman of London Transport Executive] has done an extremely good job, and that we shall find it difficult to replace him with a man of equal calibre. I should like to put on record my warm thanks for the service which he has given."

The railways were now three years embarked on modernisation, the Government providing £1,500 million for new capital and £400 million to finance the deficit in the meantime. Already over the whole field some fruits were beginning to show in improved passenger services in some parts of the country. For this year alone the allocation for capital expenditure for the Commission was £212 million. The L.T.E. share was £9 million.

The intention was to extend the electrification to Amersham and Chesham, to double the lines from Harrow to beyond Moor Park, to relieve the bottleneck on the existing two tracks, and to provide new rolling stock and station improvement works with it. The completion of these new works was scheduled for 1962.

"I always thought," Mr. Nugent stated, "that, taking the overall picture, London Transport does provide the finest city system of public transport to be found anywhere in the world, and I am concerned when I hear aspects of it which seem open to the strictures made tonight. What is needed is modernisation. It cannot be done in five minutes, but we shall have broken the back of it in five to ten years."

**RAIL-ROVER TICKETS IN THE SOUTHERN REGION.**—Rail-rover tickets are being issued again this year by British Railways, Southern Region, in three country areas near London. The tickets will be available on Saturdays, Sundays, and Bank Holiday Mondays from March 28 to October 31. Each ticket costs 8s. 6d., half-fare for children, and allows the passenger unlimited travel in one area on the day of purchase. The areas are shown on handbills at all Southern Region stations. Rail-rover tickets are available for dogs, at 2s. 6d.

**FREIGHT TRANSPORT POLICY IN NORTHERN IRELAND.**—The Minister of Commerce was asked in the Northern Ireland House of Commons on March 13, if he proposed to carry out the policy of returning road freight transport to private enterprise, as outlined in a statement by him in December, 1956. Lord Glentoran said that in his statement he had indicated that the implementation of the policy would have to await favourable circumstances. He could not see any early prospect of these circumstances arising, particularly in view of the further deterioration in the financial position of public transport. He hoped that the effect of the 1958 Transport Act would be to enable public transport finances to be brought to a condition in which they could again look at the road freight question on its merits.

## Contracts and Tenders

### South African Railways contracts

South African Railways has placed the following contracts:—

Gregg Car Co. of S.A. (Pty.) Ltd., Johannesburg: wagons type "8ZNR" and "S17," value £34,813

Soaw Metals Limited, Johannesburg: automatic couplers and sarcast bogie components, value £436,100

Standard Brass, Iron & Steel Foundries, Benoni Engineering Works & Steel Foundry (Pty.) Limited, Gregg Car Co. of S.A. (Pty.) Ltd., and Reunert & Lenz Limited: sarcast bogie components, value £397,297; £256,215; £61,363; and £69,797 respectively

Steel Wheel & Axle S.A. (Pty.) Ltd., Johannesburg: wheels and axles, value £519,169

Sturrock S.A. Limited, Johannesburg: friction bolster snubbers, £67,260

Dowson & Dobson Limited, Johannesburg: friction drawgear, value £216,172

H. Alers-Hankey Limited, Johannesburg: fog signals, value £10,643.

British Railways, Eastern Region, has placed the following contracts:—

Siemens & General Electric Railway Signal Co. Ltd.: supply and installation of signalling equipment including A.T.C. between Barking and Pitsea via Tilbury

W. & J. Simons Limited: reconstruction and repairs to platform walls and resurfacing and drainage of platforms at Lincoln Central Station

Brightside Heating & Engineering Co. Ltd.: supply, delivery and installation of compressed air facilities and oil stores at diesel maintenance depot, Finsbury Park

Carter-Horseley (Engineers) Limited: Repairs to Valkyrie Road overbridge at Westcliff

Hosking & Son (Essex) Ltd.: provision of feeder station at Rye House

Samuel Hodge & Sons Ltd.: repairs to wagon hoist at Selby Street Goods Yard, Spitalfields.

British Railways, North Eastern Region, has placed the following contracts:—

Tarslag Limited: retaining walls, foundations, ducts and drainage, Darlington North Road Locomotive Works

Lansing Bagnall Limited: two diesel industrial tractors, Bradford Forster Square

I.T.D. Limited: electric platform trucks and equipment, Stockton Goods Depot

Ransomes Sims & Jefferies Limited: two runabout cranes and spare batteries, Newcastle Forth Goods Station

W. Richardson & Co. Ltd.: heating installation, Hull Springhead vacuum testing and machine shops.

British Railways, Western Region, has placed the following contracts:—

Colston Electrical Co. Ltd.: supply, installation, testing, connecting, and setting to work of electric lighting facilities at Wellington Station and Yard

Fisher & Ludlow Limited: supply and erection of an overhead storage platform and open-type steel shelving at the "R" stores, carriage and wagon works, Swindon

Fuel Furnaces Limited: supply and erection of two quenching machines, one charging machine and one oil cooler at the case hardening shop, locomotive works, Swindon

A. N. Coles (Contractors) Limited: earthworks, inspection pits, drainage, and fuel storage in connection with fuelling and inspection facilities for diesel working at the running and maintenance depot, Newton Abbot

Nott, Brodie & Co. Ltd.: construction of a fuel storage depot, examination pit, amenities block, and drainage in connection with fuelling facilities for diesel railcars at Westbury, Wilts

Cowans, Sheldon & Co. Ltd.: supply and erection of one two-ton electrically-operated capstan at Merthyr Plymouth Street Goods Depot

Lorne, Stewart (Heating) Limited: supply and installation of water mains at Margam Marshalling Yard, Port Talbot

Stone & Co. (Bristol) Ltd.: construction of a warehouse, messroom, and offices at Avonside Wharf, Bristol.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call for tenders as follows:—

#### From South Africa:

25 direction indicator operational switches to drawing No. RMT.526 sheet 50

50 double face direction indicators and stoplight lamps to drawing No. RMT.526 sheet 47, complete with globes to drawing No. RMT.526 sheet 44, and ceramic holders with pigtailed and amber lens to drawing No. 526 sheet 48

50 single face built-in type direction indicators and stoplight lamp to drawing No. RMT.526 sheet 49 complete with globe to drawing No. RMT.526 sheet 44 and ceramic discs and red lens to drawing No. RMT.526 sheet 48

25 flasher unit adaptors to drawing No. RMT.526 sheet 54

25 flasher units to drawing No. RMT.526 sheet 53 or similar to suit adaptor to drawing No. RMT.526 sheet 54

25 fuse holders to drawing No. RMT.526 sheet 52

25 fuses to drawing No. RMT.526 sheet 51

25 five-point sockets to drawing No. RMT.526 sheet 42/1

25 five-point plugs to drawing No. RMT.526 sheet 41.

The issuing authority is the Stores Department, South African Railways. The tender No. is F/T 3669. Bids should be sent to the Chief Stores Superintendent, South African Railways, P.O. Box 8617, Johannesburg. The closing date is March 24, 1959. Local representation is essential. The Board of Trade reference is ESB/6112/59.

#### 500 low-level track jacks.

The issuing authority is the Stores Department, South African Railways. Bids in sealed envelopes, endorsed "Tender No. A.7715: Low Level Jacks," should be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg. The closing date is April 3, 1959. Local representation is essential. The Board of Trade reference is ESB/5965/59.

#### From Portuguese East Africa:

1 railway workshop travelling platform.

The issuing authority is the Ports, Railways & Transport Department, Lourenço

Marques. The tender No. is A/CFB/1/1-22/59. A provisional deposit of Esc: 40,000 must be made by tenderers. The closing date is June 12, 1959. Local representation is essential. The Board of Trade reference is ESB/5341/59.

#### From Ceylon:

14,000 steel 80-lb. F.B. rails, 45 ft. long

500 steel 80-lb. F.B. rails, 44 ft. 10 in. long

500 steel 80-lb. F.B. rails, 44 ft. 6 in. long

18,000 pairs of steel shallow fish-plates 19½ in. long holed at 5-in. centres for four ¾-in. dia. fish bolts

75,000 steel fish bolts ¾ in. dia. and 4½ in. long cup pear 1½ in. square nut with chamfered corners screwed 1½ in.

675,000 steel bearing plates 10 in. x 9 in. punched for four ½-in. square dog spikes

1,500,000 steel dog spikes ½ in. square x 6½ in. long

100,000 dog spikes ½ in. square x 5½ in. long.

The issuing authority and address to which bids should be sent is the Chairman, Tender Board, Ministry of Transport and Works, P.O. Box 547, Colombo, Ceylon. The closing date is April 15, 1959. Firms interested in quoting for this tender should contact the Crown Agents for Overseas Governments & Administrations, 4, Millbank, London, S.W.1. The Board of Trade reference is ESB/5893/59.

Further details regarding the above tenders, together with photo-copies of tender documents, can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1).

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the call for tenders from Thailand for 10 metre-gauge diesel railcar sets, recorded in our issue of June 13, 1958, has been cancelled and a new one with revised specifications issued. The tender number of the revised call is 1/2502, and the closing date is April 20, 1959. A copy of the revised tender documents, including specification and drawing, is available at the Board of Trade for loan to United Kingdom firms quoting reference ESB/14345/58.

**SUPERHEATER CO. LTD. PREFERENCE STOCK.**—At the class meeting and extraordinary general meeting of the Superheater Co. Ltd. on March 12, the resolutions to redeem the £195,000 preference stock as at April 1, 1959, were passed.

**RECORD TOURIST TRAFFIC TO BRITAIN IN 1958.**—The Chairman of the British Travel & Holidays Association, Sir Arthur Morse, announced recently that 1,250,000 people from overseas visited Britain in 1958, and that earnings in foreign currency from this traffic, including fares to British transport undertakings, amounted to £196,000,000. The number of visitors from the U.S.A. increased by 22 per cent to 320,000. The estimated total of Commonwealth visitors was 267,000, compared with 254,000 in 1957. There was a decrease of 2 per cent in the total number of visitors from Europe, from 613,600 to 601,500.

## Notes and News

**British Railways Victoria Street, London, Office.**—British Railways Office at 110, Victoria Street, S.W.1, closes today, March 20. Business is being transferred to 127, Victoria Street. The telephone number, TATe 0651, remains unchanged. The new office will open on March 23.

**Bordeaux-Riviera Express Derailed.**—Six coaches of the Bordeaux-Riviera express, French National Railways, were derailed near Montpellier on March 11. Two people were killed and 15 injured. Many of the 600 passengers suffered from shock. Broken couplings are believed to have caused the 17-coach train to divide in two. The track was damaged for some 250 yd.

**New Connection to Adriatic Coast via the Hook.**—British Railways, Eastern Region, announces that from June 1, throughout the summer period a through first and second class coach will run between the Hook of Holland and Ancona in connection with the Harwich/Hook day service. Southbound, the train leaves the Hook of Holland at 7.20 p.m. and is due at Ancona at 9.45 p.m. next day. The route is via Munich, Innsbruck, Bolzano, Bologna, and Rimini.

**Electrical Engineers Exhibition Opened.**—Lord Brabazon of Tara opened the Eighth Electrical Engineers' Exhibition at Earls Court, London, last Tuesday. Lord Brabazon is President of the Royal Institution of Great Britain and is actively connected with a number of electrical companies. The exhibition covers some 450,000 sq. ft. and 430 British firms are displaying domestic and industrial equipment. The award for the best industrial equipment display was presented by Sir Josiah Eccles, President of the Association of Supervising Electrical Engineers, to Brush Electrical Engineering Co. Ltd., for its flameproof dry-type 300-kVA. mining transformer. The exhibition closes tomorrow (Saturday).

**London Fares May Remain Unchanged.**—Mr. E. S. Fay, Q.C., for the British Transport Commission, stated before the Transport Tribunal on March 16, during the hearing of the B.T.C. passenger charges scheme, that fares in the London area might not be raised for three years if the new maximum fares proposed by the Commission were introduced. London Transport Executive had produced scales of the increases which, if implemented, would produce an amount of revenue which any well-run transport organisation should have. The scheme would produce a surplus of £4.7 million, or a little under 6 per cent of the turnover. It was hoped that the scheme would come into force about the middle of this year.

**Eastern Region Train Alterations.**—Improvements have been made in the diesel railcar service of British Railways, Eastern Region, between Norwich Thorpe, Cromer, Sheringham, and Melton Constable, since closure of the greater part of the Midland & Great Northern Line. Better connections are given at Norwich with the trains from and to Liverpool Street. New connections are made at Norwich with the 8.30 and 11.30 a.m. and 4.30 p.m. trains from Liverpool Street. The connection with the 9.30 a.m. down "Norfolkman" now reaches Cromer in 2 hr. 55 min. from Liverpool Street. In the up direction there are

similar additions and improvements; new connections from Sheringham and Cromer are made with the 12.45 and 3.45 p.m. from Norwich to Liverpool Street. Cromer now has four services daily to Liverpool Street in less than 3 hr. The 4.50 p.m. "South Yorkshireman" from Marylebone to Sheffield and Bradford now calls additionally at Rugby Central.

**Crewe Pupils and Apprentices Association Dinner.**—It has been arranged to hold the Crewe Pupils and Apprentices Association dinner at the Royal Automobile Club, Pall Mall, London, S.W.1, on Friday, April 24.

**Experimental Monorail to be Built at Basildon.**—Air Rail Limited, the company which is urging the Government to introduce monorail transport between London Airport and Central London, is to build an experimental monorail on a 156-acre site at Basildon, Essex. The line will be one and a third miles long and the project will cost £240,000. Work will start next month and will be completed in about six months. The carriage to be demonstrated is 40 ft. long and 8 ft. wide. It will be powered by a diesel engine. It will be built from alloys and plastics, weighing 12 tons laden, and will seat 51 passengers travelling at 80 m.p.h. The company's proposal for a London Airport link was described in our issue of February 7, 1958.

**Western Region Music & Drama Festival.**—Over 500 entries were received from members of the staff of British Railways, Western Region, and their families for the Festival of Music & Drama, held in Reading Town Hall on March 9-14. The Swindon Amateur Light Operatic Society attended on the opening day and rendered excerpts from popular shows. Among the competitions decided on Tuesday were veteran solo and veteran choir classes. Players from Old Oak Common Depot participated in the Shakespeare Class on March 12, presenting a scene from "King Lear." The session on March 12 ended with a programme presented by Marius Goring. On Saturday children's choirs competed, and there was a display of dancing. The festival was under the auspices of the British Railways, Western Region, Staff Association, of which Mr.

K. W. C. Grand, General Manager of the Region, is President.

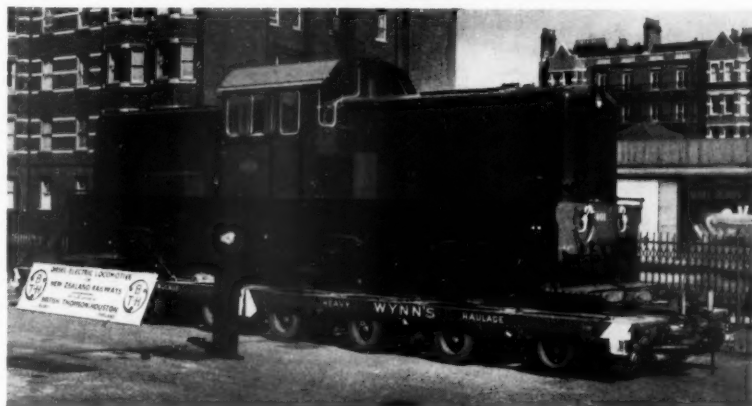
**Railway Benevolent Institution.**—At a meeting on March 16, the Board of the Railway Benevolent Institution granted annuities to four widows and five members involving an additional liability of £184. One hundred and sixteen gratuities were also granted, amounting to £1,130, to meet cases of immediate necessity. Grants made from the Casualty Fund during the month of February amounted to £1,562.

**Brindley Heath Station to Close.**—British Railways, London Midland Region, has announced that Brindley Heath Station, between Hednesford and Rugeley, is to be closed from April 6, 1959, because it is unremunerative. Passengers will be dealt with at Rugeley Town or Hednesford according to direction of travel. There is a bus service in the area. Parcels and passenger train merchandise will be dealt with at Hednesford.

**British Railways Easter Holiday Arrangements.**—Nearly 1,200 extra Easter holiday express trains have been arranged by British Railways, London Midland Region, between March 24 and April 1. They will run to and from the principal centres including Euston, St. Pancras, the Midlands, Liverpool, Manchester, North Wales, the North West, and Scotland. Additional steamers have been arranged from Holyhead to Dublin today (Friday) for which sailing tickets are required. Over 400 additional main-line trains are being run by the Southern Region to the south and south-east coast and to the west of England. March 26 is the peak day for outward travel when 90 additional trains are scheduled.

**Saunders Valve Co. Ltd. Exhibits at Olympia.**—At the Engineering, Marine, Welding, & Nuclear Energy Exhibition at Olympia on April 16-30, the Saunders Valve Co. Ltd. will show valves ranging in size from 1-in. units for laboratory and similar duty, to stainless steel valves as used in atomic reactors. Sectioned models will demonstrate constructional simplicity and isolation of operating gear from fluid. Remote-controlled valves include a sliding spindle bonnet assembly. Improved diaphragms for special fluids also will be shown. The Safran Pump Division of the

### B.T.H. at the Electrical Engineers' Exhibition



British Thomson-Houston Co. Ltd. 400-h.p. diesel-electric 3-ft. 6-in. gauge locomotive for the New Zealand Government Railways exhibited this week at the Electrical Engineers' Exhibition, Earls Court, London



company will display many designs of centrifugal pump, including water-circulating pumps for diesel engines.

**Eastern Region Easter Traffic Plans.**—During the Easter Holiday period British Railways, Eastern Region, is to run 334 additional main-line trains. Many of these extra trains will strengthen services between London and Scotland, the West Riding of Yorkshire, Newcastle, and principal towns in East Anglia. Seat and sleeping car reservation facilities are being provided on several of the additional long-distance trains. On Good Friday a modified Sunday service will operate. On Easter Saturday and Easter Monday the normal service will be run except for residential and business trains.

## Forthcoming Meetings

- March 23 (*Mon.*).—Railway Correspondence & Travel Society, West Midlands Branch, at 64, Holyhead Road, Coventry, at 7.30 p.m. Display of films on "The Festinog Railway," by Mr. R. W. F. Smallman.
- March 24 (*Tue.*).—Railway Correspondence & Travel Society, East Midlands Branch, at the N.C.S. Guild Room, Toll Street, Nottingham, at 7.30 p.m. Paper on "The Cheshire Lines Railway," by Mr. R. Dyson.
- March 31 (*Tue.*) to April 4 (*Sat.*).—Model Railway Club Exhibition, at the Central Hall, Westminster, S.W.1. Noon to 9.30 p.m. first day, remainder of week 10.30 a.m. to 9.30 p.m.
- April 1 (*Wed.*).—Electric Railway Society, at the Fred Tallant Hall, 153, Drummond Street, London, N.W.1, at 7.15 p.m. Paper on "Railway electrification in India," by Mr. G. W. Caunder.
- April 3 (*Fri.*).—The Railway Club, at the Royal Scottish Corporation, Fetter Lane, London, E.C.4, at 7 p.m. Paper on "The railways of Wales, 1899-1959," by Mr. D. G. M. Barrie.
- April 3 (*Fri.*) to April 6 (*Mon.*).—Railway Students' Association Golden Jubilee Celebrations.
- April 3 (*Fri.*).—Railway Correspondence & Travel Society, West Midlands Branch, at the Engineering Centre, Birmingham, at 7.15 p.m. Paper on "The Rugby Testing Plant," by Mr. F. Rich.
- April 7 (*Tue.*).—Permanent Way Institution, Leeds & Bradford Section, in the British Railways Social & Recreational Club, Ellis Court, Leeds City Station, at 7 p.m. Paper on "Railway weed control," by Mr. G. G. Fisher of the Chesterford Park Research Station.
- April 7 (*Tue.*).—British Institute of Management, in the Fyvie Hall, 309, Regent Street, London, W.1, at 7 p.m. Annual open meeting of the Students' and Graduates' Section of the London Branch. Subject "Expanding productivity." Speakers: Mr. W. J. Carron, President of the Amalgamated Engineering Union, and Lord McCorkquodale.
- April 7 (*Tue.*).—Railway Correspondence & Travel Society, West Riding Branch, at the Railway Institute, York, at 7.15 p.m. Colour slide display on "View of old and new on the Great North of England Railway," by Mr. R. A. Usher.
- April 8 (*Wed.*).—Railway Correspondence & Travel Society, Lancs. and North West Branch, at the Douglas Hotel, Corporation Street, Manchester, at

7.15 p.m. Paper on "The locomotives of the L.N.W.R." by Mr. J. F. Clay.

April 8 (*Wed.*).—Permanent Way Institution, London Section, at the Headquarters of the British Transport Commission, 222, Marylebone Road, London, N.W.1, at 6.30 p.m. Paper on "Drainage and stabilisation of track, cuttings and embankments on the German Federal Railways," by Herr A. Bethauser, Dipl. Ing., Deutsche Bundesbahn.

April 9 (*Thu.*).—Institution of Railway Signal Engineers, at the Federation of British Industries, 21, Tothill Street, London, S.W.1, at 7 p.m. Annual general meeting.

April 10 (*Fri.*).—British Railways, Western Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, at 5.45 p.m. Debate with the Federation of Railway Lecture & Debating Society, North Eastern Region: "That the organisation and methods of British Railways are unnecessarily elaborate."

## Railway Stock Market

With Budget hopes influencing sentiment in stock markets, share values have tended to move higher, and British Funds also were firmer though the City remains doubtful whether any reduction in the bank rate is likely. In some quarters it is now being argued that a lower bank rate may not come until after the Budget.

Among foreign rails, Antofagasta stocks remained steadier, awaiting developments in Bolivia. The ordinary stock changed hands around 12½. The preference stock was 27, the 4 per cent perpetual debentures 36 and the 5 per cent (Bolivia) debentures 87½.

United of Havana second income stock kept at 6 and the consolidated stock at 1½, while Brazil Railway bonds were 5½. In other directions, Costa Rica ordinary stock eased from 14 to 13½ and Paraguay Central prior debentures from 12½ to 12. International of Central America shares once more had a quotation of \$24½. San Paulo Railway 3s. units were again quoted at 2s.

Gedaref Railway & Development 5 per cent debentures have changed hands at 93½. Nyasaland Railways shares eased further from 13s. 6d. to 13s. on fears that an early end to the unrest among the African population is unlikely; the 3½ per cent debentures remained at 63. Elsewhere, the quotation for West of India Portuguese capital stock has been marked up from 104 to 105½; the 5 per cent debentures were again 91½.

Canadian Pacific again moved closely with Wall Street, and at \$55½ compared with \$57 a week ago. The preference stock kept at 54 and the 4 per cent debentures at 65½. Elsewhere, White Pass shares remained at \$13½. Mexican Central "A" bearer debentures rose further from 78 to 80.

A feature among shares of locomotive and rolling stock builders and engineers has been a rally in Charles Roberts 5s. shares from 8s. 9d. to 9s. 9d. on the view that there are good prospects of the dividend being maintained, despite the uncertainty regarding the Hurst Nelson position. Beyer Peacock 5s. shares again changed hands around 8s. but G. D. Peters have been marked back to 23s. 9d. though very few shares appeared to change hands. Wagon Repairs 5s. shares were 9s. and Gloucester Wagon 10s. shares 18s. while

at Birmingham, Birmingham Wagon remained at the lower level of 17s. recorded a week ago, but at Glasgow, there was a small rally from 10s. to 10s. 6d. in North British Locomotive.

Westinghouse Brake have been quite well maintained at 43s. 1½d. Associated Electrical at 55s. 3d. held steady, awaiting the full report and accounts and Lord Chandos' remarks about the outlook. English Electric were 65s., Crompton Parkinson 5s. shares eased to 12s. 10½d. and General Electric came back to 30s. 6d.

There has been a fresh rise from 20s. to 23s. 9d. in Davies & Metcalfe 10s. shares on further consideration of the past year's results. John Brown were 32s. "ex rights" to the new shares which were 2s. 1½d. premium over the 30s. issue price. Federated Foundries shares were marked up sharply by 2s. 6d. to 31s. Newton Chambers at 64s. 6d. responded to the financial results, Murex strengthened to 49s. and Metal Industries to 43s. 6d. while Ruston & Hornsby held steady at 27½. B. I. Cables rose to 49s. 6d. and British Timken to 62s. 6d. but Hawker Group shares came back to 29s. Pressed Steel 5s. shares rose further to 25s. 3d. compared with 24s. 4½d. a week ago. Dowty Group 10s. shares strengthened from 40s. 3d. to 41s. with the new shares at 4s. 3d. premium. British Oxygen, with a fresh rise from 53s. a week ago to 56s. remained under the influence of the report and accounts.

## OFFICIAL NOTICES

**TECHNICAL SALES ASSISTANT** required for Sales Director. Initiative and ability to deal with customers and correspondence. Knowledge of Railway Rolling Stock an advantage. Age 28 to 35. Salary commensurate with age and experience.—Box 782, The Railway Gazette, 33 Tothill Street, London, S.W.1.

**WORLD** wide suppliers of specialised Instruments for Railway Traction require AGENTS in Canada, Central America, Argentine, Paraguay and Uruguay. Applicants should have suitable technical personnel and be doing business, and have close contacts with railway companies. They should also be capable of handling or arranging for repair and maintenance of equipment.—Box 783, The Railway Gazette, 33 Tothill Street, London, S.W.1.

**COUNTY COUNCIL** of the West Riding of Yorkshire. Applications are invited for the appointment of an ASSISTANT LABORATORY ENGINEER at a salary within Grade A.P.V. (£1,175-£1,325). The County Council are undertaking, as Agents to the Ministry of Transport and Civil Aviation, a large major improvement programme and construction works will shortly be in hand on considerable lengths of motorway and trunk road improvements. The person appointed will be in the Soils Section of the Laboratory, and the duties will involve soil tests as the construction works proceed, together with the carrying out of Soil Surveys on other projects. The appointment is subject to the Local Government Superannuation Act, and the County Council regulations governing conditions of service, subsistence and travelling allowances. The successful candidate will be required to pass a medical examination. Application form and particulars of the appointment from the County Engineer and Surveyor, County Hall, Wakefield. Completed applications to be returned by 6th April, 1959.

**ACCOUNTANT** required by Government of Sierra Leone Railway Department for appointment for 2 tours of 18/24 months in first instance. Commencing salary according to qualifications and experience in scale (including Inducement Pay) £966, rising to £1,066 a year. Gratuity 15 per cent of total salary drawn. Outfit allowance £60. Free passages for officer and family. Children's allowances of £48/£144 a year or grant up to £288 annually for their maintenance in U.K. Liberal leave on full salary. Candidates must be over 30 and have sound knowledge of general accountancy principles and of factors governing analysis of railway revenue and expenditure. They must be thoroughly proficient in manipulation of stores, workshop and construction accounts. Knowledge of railway statistics, renewals fund, mechanised accounting and machine aids would be desirable. Applicants now serving with the British Railways would be eligible for secondment for tour of 18/24 months with salary in scale £900 rising to £1,542 a year and they should apply through their local offices. Other applicants should write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience, and quote M3A/52542/RA.

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